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ARCHAEOLOGICAL INVESTIGATIONS AT EjMg-2, CHILDS LAKE, DUCK MOUNTAIN PROVINCIAL PARK MANITOBA

by

Patricia M. Badertscher

DEPARTMENT OF CULTURAL AFFAIRS AND HISTORICAL RESOURCES

1982

IMPORTANT

12 Every person who finds an artifact or a paleontological object or skeletal remains or any object which he suspects might be an artifact or a paleontological object or skeletal remains shall forthwith report the find to the minister in writing.

S.M., 1966-67, c. 22, s. 12.

13(1) No person shall excavate for historic or archaeological research or purposes or search for or excavate for artifacts, paleontological objects or skeletal remains without a valid subsisting permit to do so issued under the regulations.

Manitoba Historic Sites and Objects Act, S.M.,
1966 - 67, c. 22, s. 1.

Manitoba Regulation 30/80

Being a Regulation Under The Historic Sites and Objects Act Respecting Permits for Conducting Archaeological or Paleontological Field Research in the Province of Manitoba

(Filed February 29, 1980)

1. Any person wishing to conduct or carry out archaeological or paleontological field research in Manitoba shall first obtain a permit for the purpose from the Historic Resources Branch, Department of Cultural Affairs and Historical Resources.

2. An application for a permit to conduct or carry out archaeological or paleontological field research shall be made on Form 1 attached hereto.

3. There shall be a separate permit for each site or area at which archaeological or paleontological field research is to be carried out.

4. Each permit is subject to the special terms and conditions attached thereto or prescribed thereon.

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by

Patricia M. Badertscher

Department of Cultural Affairs and Historical Resources
Historic Resources Branch
Winnipeg, Manitoba
April, 1982

The outline of the Duck Mountain rose clear and blue in the north-east, and from our point of view the Riding and Duck Mountains appeared continuous, and preserved a uniform, bold, precipitous outline, rising abruptly from a level country lying from 800 to 1,000 feet below them.

Henry Youle Hind
1860

TABLE OF CONTENTS

PAGE

ACKNOWLEDGEMENTS viii

I. INTRODUCTION 1

II. NATURAL HISTORY OF DUCK MOUNTAIN 14

Historical Geology 14

Glaciation 21

Glacial Lake Agassiz 23

Postglacial Flora 26

Postglacial Fauna 29

Drainage 31

Soils 34

Climate 38

Flora 40

Fauna 45

III. EXCAVATIONS AT EjMg-2, CHILDS LAKE 50

Objectives 50

Location 52

Mapping 63

Magnetic Survey 65

Excavation Methods 67

IV. RESULTS OF THE EXCAVATION 71

Area 1 72

Area 2 73

Activity Centre A 78

PAGE

Area 3 79

Area 4 81

Area 5 88

Activity Centre B 91

Area 6 96

Area 7 106

Activity Centre C 111

Area 8 114

Area 9 116

Activity Centre D 126

Area 10 127

Activity Centre E 131

Area 11 133

Activity Centre F 148

Area 12 152

Area 13 155

Activity Centre G 162

Activity Centre H 162

Activity Centre I 162

Test Pits 167

Results 168

V. ABORIGINAL OCCUPATION OF DUCK MOUNTAIN 176

Site Location 176

Site Chronology 176

PAGE

Site Geography 191

REFERENCES 208

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An "end of the field season" report, such as the following account of the 1981 excavations at Childs Lake in Duck Mountain Provincial Park, reflects the care, concern and hard work of the many individuals who have been connected with the project. I would like to formally thank and publicly acknowledge the assistance of:

-- The Employment and Services Branch of the Department of Labour and Manpower, whose STEP program paid the salaries of the University of Manitoba students who comprised the Childs Lake crew. To these nine, Nancy Anderson, Gail Fifik, Laury Friesen, Sue Kosowan, Kelly Land, Steve Lundin, Greg McClure, Tony Scaletta and Mike Zywina, I would particularly like to express my thanks. A good field season results primarily from the positive attitude of the crew toward living and working in often uncomfortable conditions. The Childs Lake crew not only worked hard, but managed to build a sauna, organize badminton and fencing tournaments, go fishing, hiking and exploring; it was a pleasure to work with them;

-- Stan Williamson, then Regional Manager of the Western Region of the Parks Branch of the Department of Natural Resources in Dauphin, who made it possible for the project to use Parks facilities and equipment in Duck Mountain Provincial Park;

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-- Bob McKenzie, Resource Technician in the Western Region of the Parks Branch, who generously shared his knowledge of the Duck Mountain area with us;

-- The Dauphin Chapter of the Manitoba Archaeological Society under the leadership of Joe Robertson, who visited the Childs Lake site and surface collected materials for the project;

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-- Margaret Hanna, who excavated a pit "just for fun", and was ready to discuss pottery at any time of day or night;

-- Ian Dyck, who provided information on sites in the Duck Mountain area of Saskatchewan;

-- Winnipeg potter Vera Slobodian, who replicated a Laurel vessel with clays from the site, and whose enthusiastic interest in all aspects of the manufacture of Native pottery should be an inspiration to "professional" archaeologists;

-- Terry Gibson, who conducted the magnetometer survey at the site and willingly tolerated our many questions about the procedure;

-- Alan MacKenzie and Ralf Lilje-Gren of Information Services, who ably photographed the artifacts for this report;

-- Kelly Land, who drew the contour map of EjMg-2; and most importantly

-- The staff of the Historic Resources Branch, whose activities in Winnipeg during the field season and afterward insured the smooth running of the Childs Lake Project. Particularly I would like to mention Dan Fedoruk, who drafted many of the figures included in this report; Peter Walker, who drafted the maps and some of the figures, as well as photographing the Dauphin MAS artifact collections; Joan Wachs, who typed the manuscript for publication; and most especially Leo Pettipas, who not only supervised the project affairs and edited the final version of this report, but also managed to remain cheerful through it all.

I. INTRODUCTION

When geologist Henry Youle Hind and his exploring party left Toronto in July of 1857, they were instructed by George Gladman, representing the Canadian government,

> .... to make a thorough examination of the tract of country between Lake Superior and Red River, by which may be determined the best route for opening a facile communication through British territory, from that lake to the Red River Settlements, and ultimately to the great tracts of cultivable land beyond them. (Hind 1860: I: 4)

Hind spent much of two years investigating the territory that would eventually become west-central Manitoba. During this period, he or members of his party virtually encircled Duck Mountain, travelling by wagon and canoe along the western shores of Lake Winnipegosis and Lake Manitoba, as well as through the Valley, Assiniboine and Swan River valleys (Figure 1). He considered the Assiniboine Valley to be well suited for agricultural purposes (1860: II: 246-249), but the area east of the Riding and Duck Mountains was "a very insignificant field for settlement" (1860: II: 244).

Hind, of course, did not actually venture into Duck Mountain and neither, for that matter, did any of the early European explorers or fur traders who either crossed this terrain or established trading posts within it. Although Henry Kelsey travelled with a group of Assiniboines west of Duck Mountain on the prairies in 1690 and 1691, his route to and from York Fort on Hudson Bay was confined to the more northerly Saskatchewan River (A.S. Morton 1973: 109-113). The establishment of Fort Dauphin by LaVerendrye's son, Pierre, in 1741 emphasized

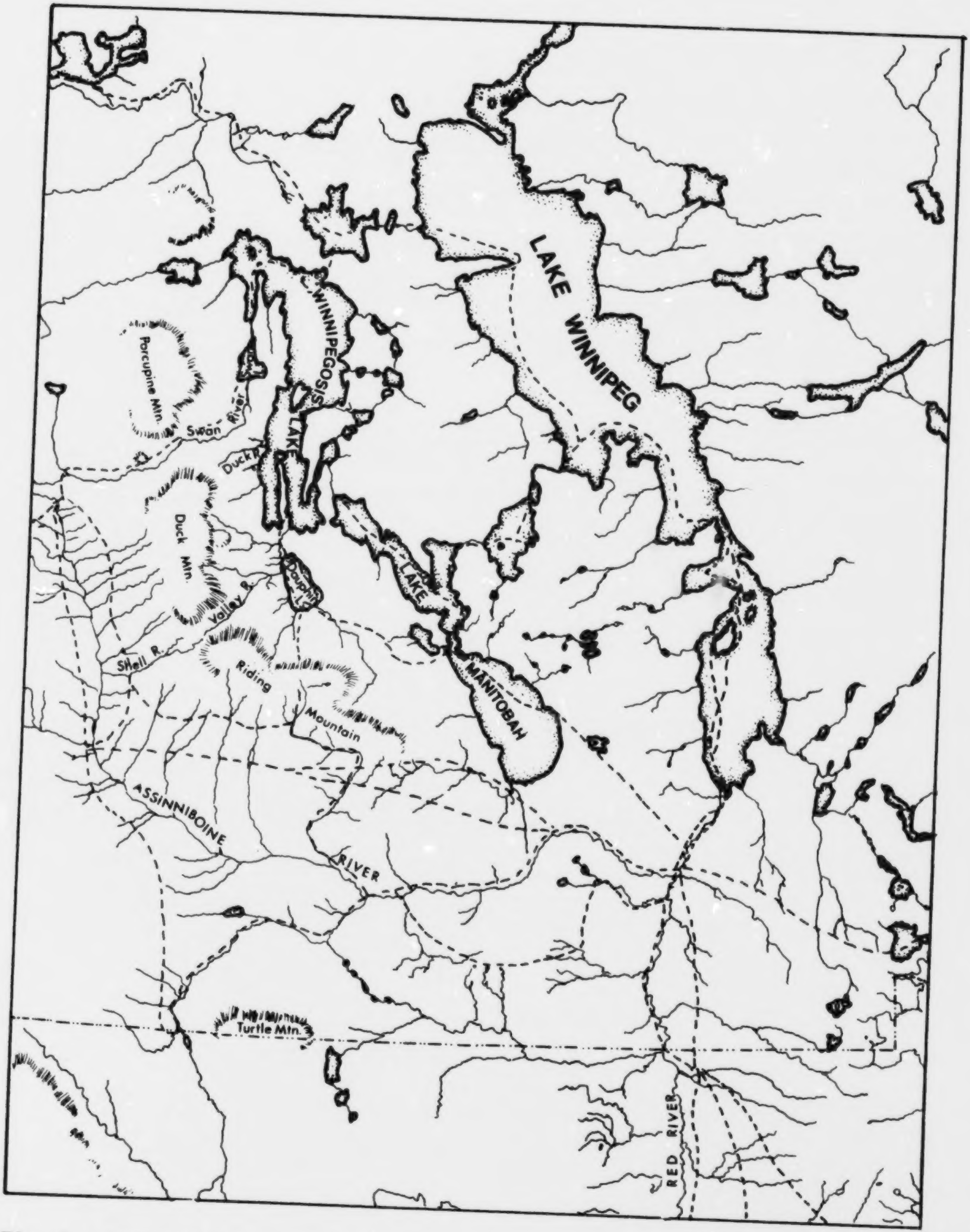
LAKE WINNIPEG
WINNIPEGOSIS LAKE
Porcupine Mtn.
Swan River
Duck R.
Duck Mtn.
Valley R.
Shell R.
Riding Mountain
Dauphin
LAKE MANITOBAH
ASSINNIBOINE RIVER
Turtle Mtn.
RED RIVER

Fig. 1 Henry Hind's routes through west-central Manitoba. Adapted from Hind 1860.

the gains to be made by an inland fur trade. The exact location of this post has not been determined, but none of the likely possibilities (Meadow Portage, Waterhen River, Mossy River, Lake Dauphin) extends as far west as Duck Mountain. Peter Pond's Fort Dauphin of 1775 was located on his map of 1790 at the northwest angle of Lake Dauphin (A.S. Morton 1973: 439), while the various short-lived pedlars' enterprises clustered about the mouth of the Mossy River.

It was not until the second half of the eighteenth century, however, that historical documents record European travel within the interior portion of west-central Manitoba. Joseph Smith and Joseph Waggoner with a band of Indians from the Swan River country spent two winters, 1756-57 and 1757-58, attempting to convince other Natives to come to the Hudson's Bay Company's York Fort with their furs in the spring, rather than trading them inland (A.S. Morton 1973: 250-52; Warkentin and Ruggles 1970: 68). Their first winter was spent on the prairies west of Duck Mountain hunting bison; the Swan River was utilized as a transportation route for the trips west and east. After a week's rest at York Fort, Smith and Waggoner returned to the interior in the summer of 1757.

> .... They passed through Lake Winnipegosis to Manitoba Lake, and through the bush country east of Lake Dauphin to the Assiniboine. They then drifted up the valley of that river, hunting buffalo, and gathering provisions for the journey homeward as they went; and in the spring they built the canoes for their return on Swan River. They arrived at York Fort at the head of fifty-seven canoes (A.S. Morton 1973: 252).

In the winter of 1769-70, William Tomison of the Hudson's Bay Company's Fort Severn traversed this same country for the same purpose, but was less successful than Smith and Waggoner had been. He hunted bison in the Assiniboine valley during the winter months, reaching Lake Dauphin by way of the Ochre River in the spring to make canoes for his return trip to Hudson Bay.

> .... In May they paddled across the lake and down its outflow, our Mossy River. About twelve miles down this stream, and eight miles from Lake Winnipegosis, which it enters, they came on a hundred tents of Indians awaiting the arrival of the pedlars. ... The number of expectant tents, according to Tomison, had increased to two hundred when the Pedlar, his bookkeeper, and ten servants arrived in two canoes. ... All the Indians, including Tomison's own band, traded their furs with these men. It was the fifth day before the Englishman could draw his men off. ... His four canoes brought no more than 387 beaver worth of furs, exclusive of his own trapping (A.S. Morton 1973: 281-282).

By the late 1790s and early 1800s, the upland area of west-central Manitoba was ringed with trading posts, most of which were affiliated with either the Hudson's Bay or Northwest Companies, but also including others which were operated by independent traders. For the most part, these operations were located strategically at the confluences of streams with rivers, or rivers with lakes (Figure 2). The established pattern of concentrating trade efforts on the obvious transportation routes, while avoiding the upland areas, persisted until west-central Manitoba was opened for general settlement in the 1890s and Duck Mountain was exploited for its timber resources.

Obviously, the early history of this part of the province, coupled with the absence of a written language among the aboriginal inhabitants, have combined to foster the illusion that Duck Mountain, along with Riding Mountain to the south and the Porcupine Hills to the north, were virtually uninhabited in early historic times and, by extension, in prehistoric times as well. This assumption is unfounded, of course, but refuting it leads to the often confused and contradictory world of trade post journals, diaries, early histories and maps, linguistics, and archaeological investigations. With effort, however, a more accurate representation of Duck Mountain and the Native peoples who utilized its resources does emerge. For example, during the winter of 1819-1820, Peter Fidler at Fort Dauphin employed a Native hunter to supply the post with meat. On December 31, 1819, Fidler remarks that the Hunter "is pitched away to the head of the river" (H.B.C.A., P.A.M., B.51/a/2, fo. 24). The river referred to is, of course, the Valley River whose source lies within Duck Mountain. Additionally, Fidler's men, as well as his Northwest Company opponents, regularly travelled to the Shell River, running through the western edge of Duck Mountain, to trade for dry provisions. On January 26, 1820, Fidler notes that his son, Charles, and another man have returned from visiting three tents on the Shell River, where Indians were making dry provisions from bison. As usual, the Northwest Company had sent along two men to follow Fidler and his companion, in order to prevent them from gaining an unfair advantage in trade. One of these men was Hoole (likely Francois Capois Houle; see Coues 1897: 442, Note 5), whose

KEY TO FIGURE 2

1. NW Fort Dauphin c. 1800
2. HBC Fort Dauphin c. 1815
3. NW Fort Dauphin c. 1820
4. HBC Fort Dauphin c. 1820
5. NW Swan River House 1790
6. HBC Swan River House c. 1790
7. NW Swan River House c. 1800
8. HBC Shoal River House c. 1808
9. NW Thunder Hill c. 1800
10. HBC Somerset House c. 1794
11. NW Upper Red Deer House
12. NW Lower Red Deer House
13. HBC Shell River Post - 1794
14. NW Shell River Post - 1794
15. NW Angling Lakes Post c. 1802 - approximate location
16. NW Qu'Appelle House c. 1797
17. NW Aspin House c. 1800
18. Various NW Houses c. 1790-1820
19. Various HBC Houses c. 1790-1820
20. HBC Post 1795
21. Various NW Posts - Partridge Crop - 1795-1820
22. Various HBC Posts 1795-1820

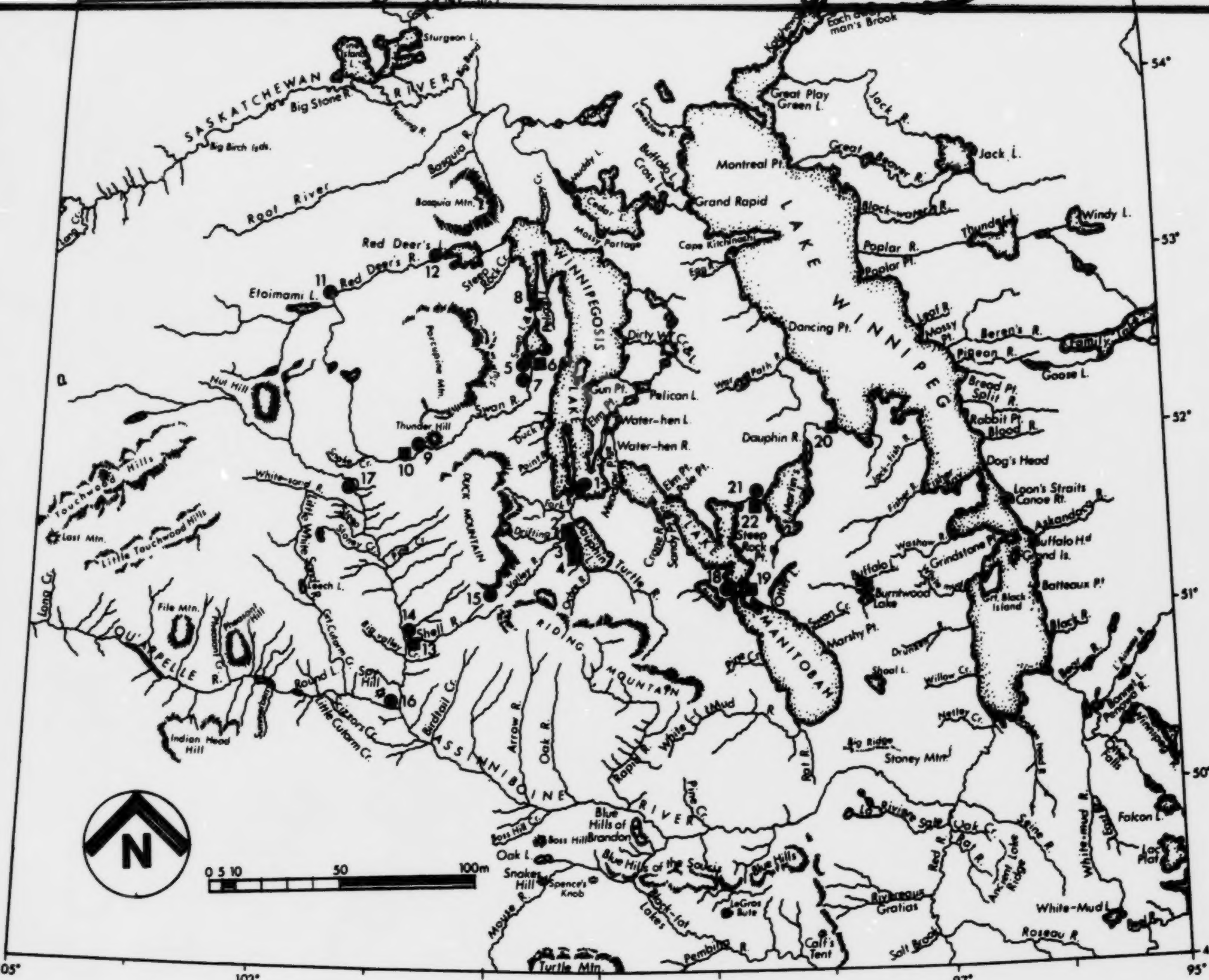
54°
53°
52°
51°
50°
49°
105°
103°
101°
99°
97°
95°
SASKATCHEWAN RIVER
Big Stone R.
Big Birch Isds.
Sturgeon L.
Root River
Basquia R.
Basquia Mtn.
Red Deer's L.
Red Deer's R.
Etoimami L.
Steep Rock Cr.
Porcupine Mtn.
Swan R.
Thunder Hill
Nut Hill
Touchwood Hills
Little Touchwood Hills
Last Mtn.
Long Cr.
White-sand R.
Little White Sand R.
Stoney Cr.
Leech L.
Gt. Cutarm Cr.
Little Cutarm Cr.
Scissors Cr.
Round L.
Salt Hill
File Mtn.
Pheasant Cr.
QU'APPELLE R.
Indian Head Hill
Big valley
Shell R.
Birdtail Cr.
DUCK MOUNTAIN
Valley R.
Drifting
Dauphin L.
Turtle R.
RIDING MOUNTAIN
Arrow R.
Oak R.
ASSINNIBOINE RIVER
Blue Hills of Brandon
Boss Hill Cr.
Boss Hill
Oak L.
Snakes Hill
Spence's Knob
Mouse R.
Blue Hills of the Souris
Black-fat Lakes
Turtle Mtn.
Pembina R.
LeGros Bute
Calf's Tent
Blue Hills
WINNIPEGOSIS LAKE
Mossy Portage
Cedar L.
Buffalo L.
Cross L.
Grand Rapid
Cape Kitchinashi
Montreal Pt.
Great Play Green L.
Each other man's Brook
Jack R.
Jack L.
Great Beaver R.
Black-water R.
Poplar R.
Poplar Pt.
Thunder L.
Windy L.
LAKE WINNIPEG
Dancing Pt.
Leaf R.
Mossy Pt.
Beren's R.
Family L.
Pigeon R.
Goose L.
Bread Pt.
Split R.
Rabbit Pt.
Blood R.
Dog's Head
Loon's Straits
Canoe Pt.
Askandaca R.
Buffalo Hd.
Grand Is.
Batteaux Pt.
Grt. Black Island
Black R.
Dirty Water Cr.
Pelican L.
Gun Pt.
Elm Pt.
Water-hen L.
Water-hen R.
Dauphin R.
Fisher R.
Washow R.
Grindstone Pt.
Buffalo L.
Burntwood Lake
Swan Cr.
Marshy Pt.
Drunken R.
Shoal L.
Willow Cr.
Netley Cr.
Big Ridge
Stoney Mtn.
Crane R.
Sandy R.
Elm Pt.
Pole Pt.
Steep Rock Pt.
St. Martin's L.
Otter L.
MANITOBAH
Pine Cr.
White Mud R.
Rapid R.
Rat R.
La Riviere Sale
Oak Cr.
Rat R.
Red R.
Seine R.
Ancient Lake Ridge
Riviere aux Gratias
Salt Brook
Roseau R.
White-mud R.
White-Mud L.
Falcon L.
Lac Plat
Otter Falls
Winnipeg R.
Bonnet L.
Pinawa R.
1
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Fig. 2 Northwest Company and Hudson's Bay Company trading posts in west-central Manitoba, 1790 - 1820. Base map after Hind 1860.

apparent thievery Fidler is quick to comment upon. "Hoole & men took up a cache of dry provisions, belonging to the Indians, laid up in the fall" (H.B.C.A., P.A.M., F.51/2/2, fo. 27).

Approximately 20 years earlier, however, before the Hudson's Bay Company had established its post on the west shore of Lake Dauphin, the Natives of the area had traded with the Northwest Company's post located on the Mossy River near its entrance to Lake Winnipegosis. One small family group that traded at this post between 1800-1802 included John Tanner, a young white man in his early twenties, who had been captured by Shawnees near the Ohio River when he was nine years old and sold to an Ottawa woman, who had raised him as her son. This group came west from Lake Superior in 1794 and for 25 years John Tanner hunted and trapped in the Red River area. His memoirs, which were written down and edited by Dr. Edwin James in 1830, provide rare glimpses of the fur trade from a Native view point.

Tanner's group spent the winters of 1800-01 and 1801-02 trapping in Duck Mountain, returning by way of the Valley and Mossy Rivers to Lake Winnipegosis in the spring to make sugar and to trade their furs. The master of the Northwest post at this time was Angus McGillis, the same man who provided opposition to Fidler on the shores of Lake Dauphin between 1819-1821. McGillis obviously appreciated Tanner's unusual qualities.

> .... The trader, whose name was M'Glees, at length took notice of me, and invited me to live with him. He said so much to induce me to leave the Indians, that I felt sometimes inclined to follow his advice, but whenever I thought of remaining long at the trading house, I found an intolerable irksomeness

> attending it. I felt an inclination to spent all my time in hunting, and a strong dislike to the less exciting employments of the men about a trading house (James 1956: 80).

Angus McGillis had a brother, Hugh, who served the Northwest Company as head of the Swan River District. Hugh McGillis supervised the Upper House on the Red Deer River in the late 1790s, moving to Fort Alexandria on the Assiniboine River west of Duck Mountain in 1801. From Alexandria, Hugh was able to visit his brother frequently, travelling to Fort Dauphin by horse or dog sled. While he was absent, Alexandria was left in the care of his assistant, Daniel Harmon, whose diary for July 9, 1801, comments upon the arrival of John Tanner.

> Cam here an American who when quite a Child was taken from his Parents (who then lived in the Illinois Country) by the Sauteux and with whom he has remained ever since and speaks no other language but theirs. He may now be about twenty years of age and is looked upon as a Chief, neither does he like that any one should speak to him about his Relations but he in every respect except his colour resembles the real Savages with whom he lives & is said to be an excellent Hunter, and remains with an old Woman who soon after he was taken from his Friends adopted him for her son & he appears to be fond of her and she of him as if she actually was his Mother (Harmon 1957: 49).

Despite the relative scarcity of historical records documenting Native utilization of Duck Mountain, one can find archaeological evidence to indicate a long tradition of aboriginal occupation of this upland region, from Paleo-Indian times to the Historic period. At present, 39 archaeological sites have been confirmed for the Duck Mountain Provincial Park and Forest, but prior to the 1981 field season, only one of these had been excavated to any extent and summarized in a written report.

This site, EjMf-1, commonly called the "Teepee Site" in reference to the teepee rings found on its surface, is a multi-component site containing Paleo-Indian, Archaic and Woodland materials. It was excavated by the Manitoba Archaeological Society in 1971 and 1972, and by Watson Crossley, with the assistance of the Manitoba Archaeological Society, in 1977. The earlier recoveries were analyzed by Margaret Hanna (1973).

The importance of the Teepee Site had long been suspected by local residents, who observed the surface patterning of stones and excavated five of the rings in the late 1940s, finding no artifacts (Fred Cason, Personal Communication). The site's significance was confirmed in September of 1952, however, by Richard S. MacNeish, then of the National Museum of Canada, who visited the area for ten days, staying with Gilbert Plains resident Fred Cason. MacNeish examined local artifact collections, as well as actual sites, and was impressed with the antiquity of many of the spear points found on nearby farm land (Fred Cason, Personal Communication). In 1965, a Glacial Lake Agassiz Survey team from the University of Manitoba tested the Teepee Site and several others located previously by Dr. William Mayer-Oakes, then Head of the Anthropology Department, and Nigel Smith of Mafeking, who had collected archaeological materials on Duck Mountain for many years. The G.L.A.S. team located ten sites within the Park and Forest Reserve boundaries, but the only extensive excavations carried out were those of the Manitoba Archaeological Society at the Teepee Site, EjMf-1.

Despite these definite indications of Native utilization of Duck Mountain over a long period of time, archaeologists and other prehistorians have tended to regard the area as marginally important. Conventional wisdom defines Duck Mountain as one of those places where very small family groups or solitary hunters spent their winters trapping fur bearing animals or killing big game for provisioning trade posts. This interpretation is based primarily on evidence from fur trade journals, although these were generally not kept up during the summer, when the previous year's furs were transported to Hudson Bay or Lake Superior and most posts were closed for several months. Artifactual evidence from Duck Mountain seemed to confirm this interpretation, however, for only lithic materials connected with hunting activities were ever recovered from the ten sites identified by 1965.

Research in this area lay dormant for 15 years, until expansion of tourist facilities within Duck Mountain Provincial Park afforded an opportunity for further investigation. For eight weeks during the summer of 1980, under the auspices of the Historic Resources Branch and in conjunction with the Parks Planning Branch of the Department of Natural Resources, Patrick H. Carmichael and his assistant, Michael Zywina, surveyed throughout the Park in areas directly impacted by the opening of new cottage lots and expanded recreational facilities. Their mandate was threefold:

1) to examine those areas slated for immediate and future development within the park so that an impact statement could be made;
2) as a corollary to (1), to examine adjacent areas which, as a result of increased traffic flow, might also be affected;

> 3) on the basis of (1) and (2), to provide the Parks Branch with a predictive scheme of prehistoric site locations to assist in future planning (Carmichael 1980: 6).

Carmichael's survey provided important evidence relating to the prehistoric inhabitants of the Park. In addition to the discovery of 27 new sites within the Park and Forest Reserve, he recorded the first occurrence of Native manufactured pottery within Duck Mountain. Located on a ridge of land on the east side of the Valley River as it emerges from the southwestern end of Singush Lake, EjMe-5 contained "20 lithic items including the base of a biface, 18 charred bone fragments and 5 pottery sherdlets" (Carmichael 1980: 19). Archaeologists have generally assumed that Native pottery was manufactured during the spring and/or summer months. Either option contradicts conventional wisdom on this subject.

Although EjMe-5 and other nearby sites on Singush Lake certainly merit further investigation, Carmichael's highest recommendation for salvage excavation was awarded to EjMg-2, a site located on the eastern side of Childs Lake close to its southern end.

> The Childs Lake Site is extremely important. Aside from the numerous research possibilities it offers, it is scheduled for development within the next few years. If action is not taken immediately, this rare opportunity to study intrasite settlement patterns will be lost. The Childs Lake Site should be given top research priority in any future work on Duck Mountain (Carmichael 1980: 15).

From his tests, Carmichael estimated the site to be quite extensive, running for some 375 metres along a high ridge behind the beach. On the north, it extended past a Parks Branch cabin and beyond a small creek draining into Childs Lake from Hickey Lake to the east. On the south, artifacts were recovered well into the zone of cottage lot development. In addition to being approximately as large as the Teepee Site, EjMg-2 also appeared to possibly contain more than one component. In a strat pit on the ridge, a Terminal Woodland projectile point was recovered 5 cm beneath the surface, along with other lithic artifacts whose distribution extended to 12 cm DBS. No artifacts were recovered for an additional depth of 4 cm, but then charred bone fragments were retrieved between 16-21 cm DBS (Carmichael 1980: 12).

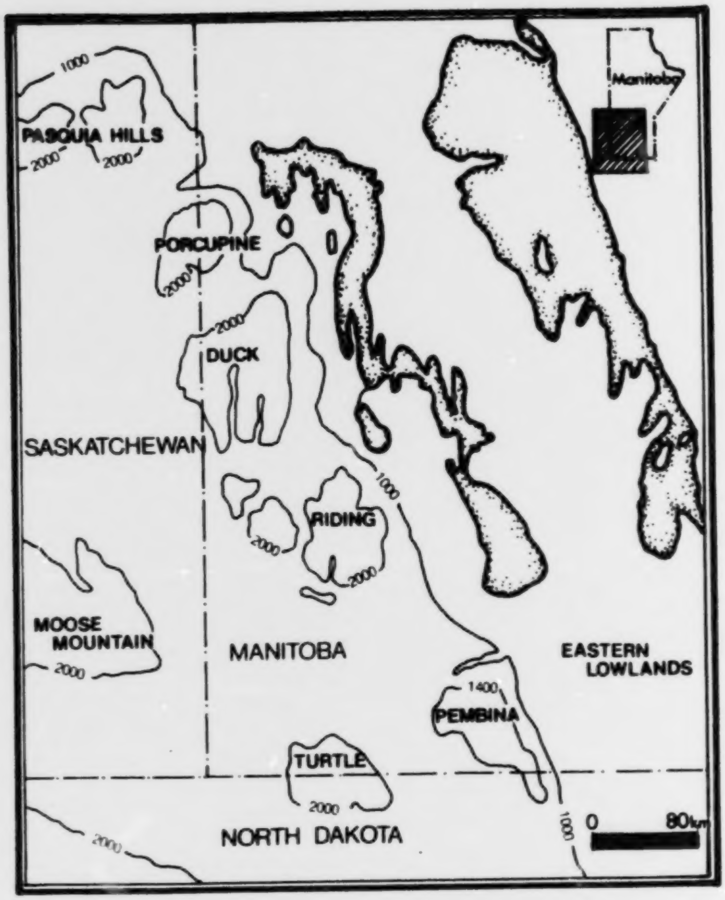
On the basis of these recommendations, a crew of ten, including the author who served as Project Director, spent 13 weeks conducting salvage excavations at EjMg-2 during the 1981 field season. The following report contains details of those excavations, along with a review of the archaeological sites discovered on Duck Mountain to date, as well as a discussion of aboriginal settlement patterns on Duck Mountain during early historic and prehistoric times.

II. NATURAL HISTORY OF DUCK MOUNTAIN

Duck Mountain Provincial Park and its surrounding Forest Reserve comprise the central portion of the upland region of Manitoba, which trends from the southeast to the northwest across the province (Figure 3). This upland or escarpment area is interrupted at regular intervals by broad valleys containing major river systems. On the north, Duck Mountain is separated from the Porcupine Hills by the Swan River Valley, while in the south, the drainage system of the Valley River divides Duck from Riding Mountain (Figure 4). Both valleys contain rich agricultural land and, as one would expect, population centres are located there rather than on the Mountain itself. Within the Park and Forest Reserve, the upland region proper extends for approximately 5200 m^2, with a topography comprised mainly of hummocky moraine. On the east, within a distance of 10 km, the escarpment drops abruptly from 670 to 425 m a.s.l. to the Manitoba Lowlands stretching eastward to Lake Winnipegosis. Another steep drop occurs in the north between the upland and the Swan River Valley, from 605 to 425 m a.s.l. in 6 km. "Elsewhere the slopes are more gradual, and the boundaries with the Assiniboine plain, Riding Mountain upland and Valley River plain lie between 460 and 580 m ... a.s.l." (Klassen 1979: 30-31).

Historical Geology

Although much of the rugged topography characteristic of Manitoba's uplands can be attributed to Pleistocene glacial activity,



Manitoba
1000
PASQUIA HILLS
2000
2000
PORCUPINE
2000
2000
DUCK
SASKATCHEWAN
1000
RIDING
2000
2000
MOOSE MOUNTAIN
2000
MANITOBA
EASTERN LOWLANDS
1400
PEMBINA
TURTLE
2000
NORTH DAKOTA
2000
1000
0
80km

Fig. 3 The Manitoba Escarpment. Contours are in feet above sea level. Adapted from Simpson 1970.

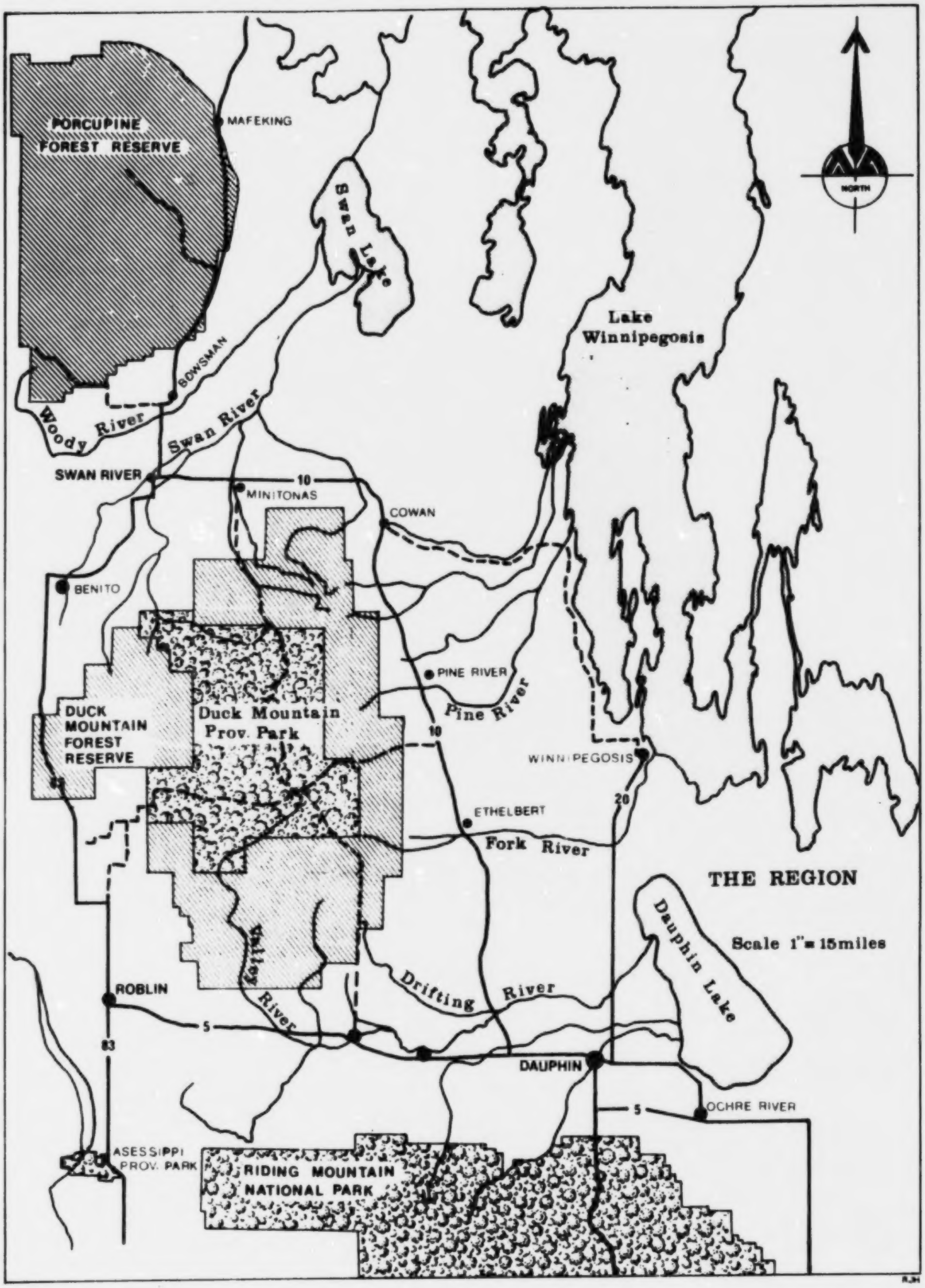

PORCUPINE FOREST RESERVE
MAFEKING
Swan Lake
Lake Winnipegosis
NORTH
BOWSMAN
Woody River
Swan River
SWAN RIVER
10
MINITONAS
COWAN
BENITO
PINE RIVER
Pine River
DUCK MOUNTAIN FOREST RESERVE
Duck Mountain Prov. Park
10
WINNIPEGOSIS
83
ETHELBERT
20
Fork River
THE REGION
Dauphin Lake
Scale 1"= 15miles
Valley River
Drifting River
ROBLIN
5
83
DAUPHIN
5
OCHRE RIVER
ASESSIPPI PROV. PARK
RIDING MOUNTAIN NATIONAL PARK
R.H

Fig. 4 Duck Mountain Provincial Park and Forest. Courtesy Manitoba Parks Branch.

in reality it is the nature of the underlying rock formations which have contributed most to the uniqueness of the escarpment. During the Upper Cretaceous Period, some 70 - 100 million years ago, a great sea covered the interior of what is now the North American continent. Debris from the mountainous areas to the west eroded into the sea, becoming compressed into layers of shale which were eventually uplifted to become part of the continent. This shale, known in west-central Manitoba as the Riding Mountain Formation, is extraordinarily hard in comparison with older materials lying beneath it. Therefore, wherever these shales lie close to the earth's surface, they have remained relatively impervious to glacial and other natural forces of erosion, while the older formations exposed beneath have been undercut and eroded away. The Swan and Valley River systems flow through gaps in the escarpment where the Riding Mountain Formation does not lie so close to the surface. The result has been to isolate individual uplands, such as Riding Mountain, Duck Mountain, and Thunder Hill, rather than to create a continuous escarpment.

Outcrops of the Riding Mountain Formation may be observed in various locations along the length of the Manitoba escarpment. Hind viewed one such exposure as he climbed the eastern face of Riding Mountain in October, 1858.

> ... Thus far, the soil consisted of drift clay with many large boulders in the beds of rivulets; but at an altitude of about 400 feet above Dauphin Lake, we arrived at a cliff-like exposure of Cretaceous rocks, through which a stream had cut a channel seventy to ninety feet deep. ... The stratification appeared to be nearly horizontal, with a very slight dip to the south-west. ...

> The layers containing ferruginous concretions were found, as well as a soft thin band from which the Indians make their pipes. The total thickness of the exposure exceeded 100 feet (1860: II: 53-54).

In addition to these shales, limestone outcrops (Ashville, Favel and Vermilion River Formations) from approximately the same geological time period can also be seen along the escarpment. To the east in the Manitoba Lowlands, the underlying formations date to the much older Lower Cretaceous, Jurassic, Middle and Upper Ordovician Periods (Klassen 1979: 4).

For all practical purposes, glacial activity during the Pleistocene Epoch eradicated most evidence of Tertiary Period deposition in the central uplands. In two lengthy cross-sections (Figure 5), Klassen found only glacial drift of varying thickness overlying bedrock on Duck and Riding Mountains. However, in one cross-section through the northwestern uplands of Duck Mountain, a deposition of clay and silt possibly relating to the Tertiary Epoch was located between the Riding Mountain Formation and the Largs Formation, oldest of the glacially deposited tills (Figure 6). After comparing the thickness of drift deposits between Riding and Duck Mountain, Klassen concludes that "The Duck Mountain upland thus appears to be built largely of drift and, unlike the Riding Mountain upland, does not reflect the broad topographic elements of the underlying bedrock" (1979: 32).

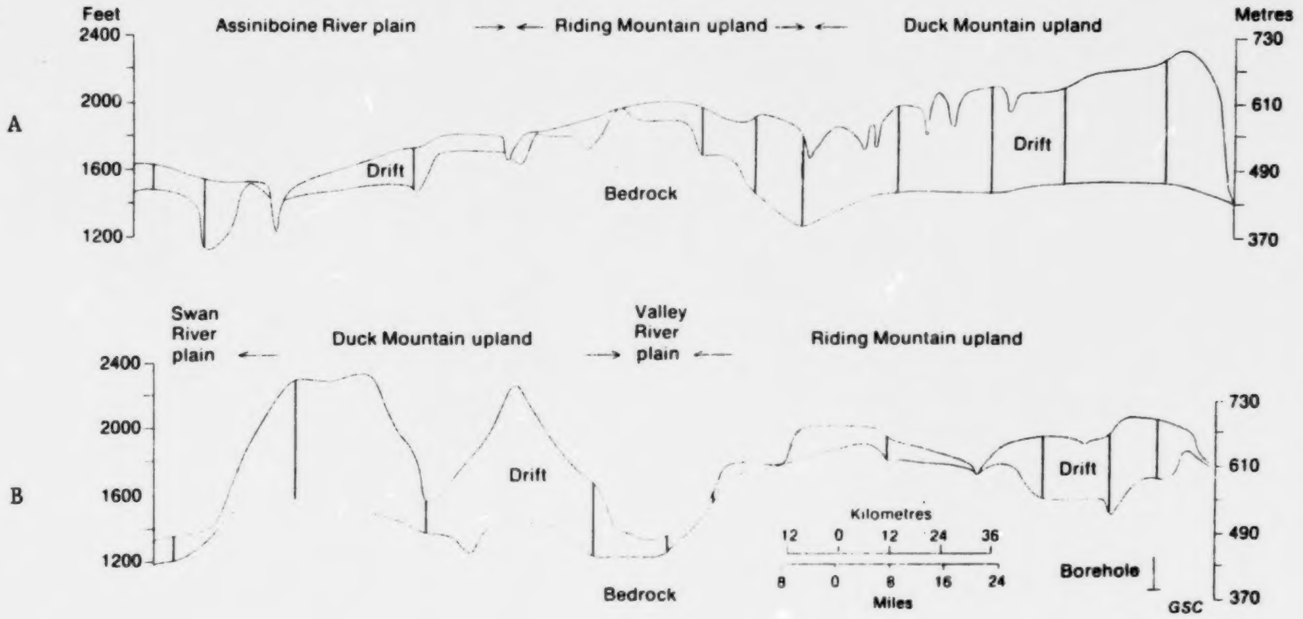

A
Feet
2400
2000
1600
1200
Assiniboine River plain
Riding Mountain upland
Duck Mountain upland
Metres
730
610
490
370
Drift
Bedrock
Drift
B
Swan River plain
Duck Mountain upland
Valley River plain
Riding Mountain upland
2400
2000
1600
1200
Drift
Bedrock
Drift
730
610
490
370
Kilometres
12 0 12 24 36
8 0 8 16 24
Miles
Borehole
GSC

Fig. 5 Sections showing drift thicknesses from south to north (A) and northwest to southeast (B) in western Manitoba. From Klassen 1979; courtesy R.G. Blackadar, Director, Geological Information Division, Geological Survey of Canada.

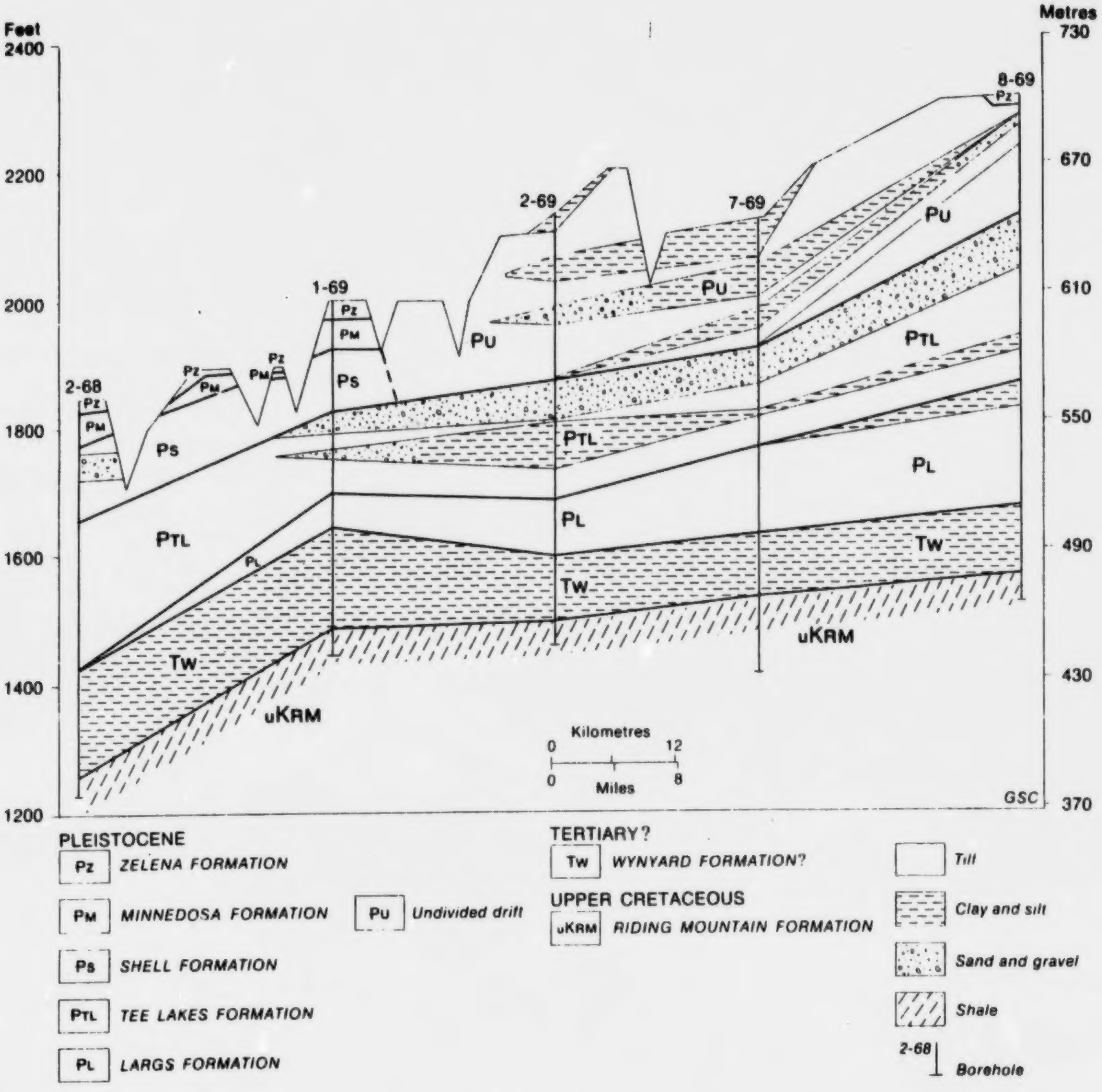

Feet
2400
2200
2000
1800
1600
1400
1200
Metres
730
670
610
550
490
430
370
2-68
1-69
2-69
7-69
8-69
Pz
PM
Ps
PTL
PL
PU
Tw
uKRM
Kilometres
0
12
0
Miles
8
GSC
PLEISTOCENE
Pz ZELENA FORMATION
PM MINNEDOSA FORMATION
Ps SHELL FORMATION
PTL TEE LAKES FORMATION
PL LARGS FORMATION
PU Undivided drift
TERTIARY?
Tw WYNYARD FORMATION?
UPPER CRETACEOUS
uKRM RIDING MOUNTAIN FORMATION
Till
Clay and silt
Sand and gravel
Shale
2-68
Borehole

Fig. 6 Geological section across the northwestern part of Duck Mountain. From Klassen 1979; courtesy R.G. Blackadar, Director, Geological Information Division, Geological Survey of Canada.

Glaciation

In contrast to some areas of the midwestern United States, virtually nothing is known about early glacial activity in Manitoba (see Figure 7).

> Continental glaciation during the Pleistocene was cyclic. Glacial advances are recorded by deposits of drift spread across the landscape. ... When the ice front retreats, the drift sheet is exposed to weathering and erosion that convert the rock and mineral fragments to soil which may be capable of supporting plant growth. If the glacier again advances depositing a second layer of drift, a stratigraphic record is constructed containing two till sheets separated by an ancient soil layer. Pleistocene stratigraphy in the Upper Mississippi valley contains four till layers separated by three soil or weathered strata. Ice also filled up pre-glacial valleys, established new drainage systems along the margin of the ice and subsequently upon the drift and loess deposits. This record is interpreted as representing four glacial advances named, from the oldest to the youngest, after the states in which the drift sheet is well displayed: Nebraskan, Kansan, Illinoisan, and Wisconsin stages. ... Similar strata in Europe also indicate four glacial advances during the Pleistocene (Petersen, Rigby, and Hintze n.d.: 173).

Not all of the several till formations of Pleistocene age illustrated in Figure 6 occurred in every borehole or exposure, but on the uplands of both Duck and Mountain mountains, Klassen consistently found the uppermost till to be that of the Zelena Formation (1979: 32), characterized as:

> ... commonly yellowish brown (10 YR 5/4) or very dark greyish brown (2.5 Y 3/2) where oxidized and dark olive grey (5 Y 3/2) or very dark grey (5 Y 3/1) where unoxidized. Carbonate contents are mostly in the 26 to 36 per cent range. ... On the uplands the till is commonly less

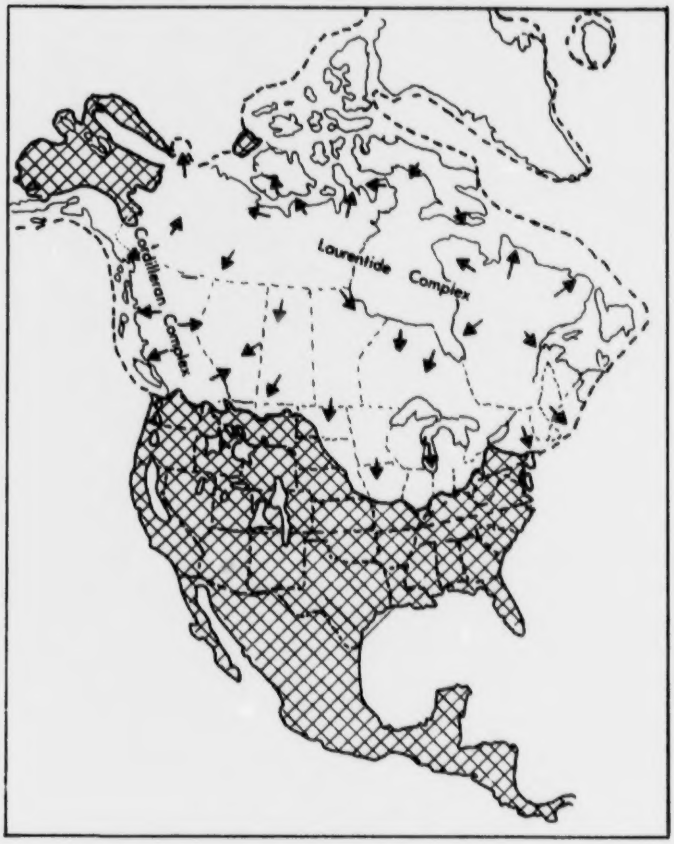

Cordilleran Complex
Laurentide Complex

Fig. 7 Maximum extent of glaciation during the Pleistocene. Adapted from Petersen and Hintze n.d.

> indurated and siltier ... than the underlying till of the Minnedosa Formation. ... The till is generally between 3 and 15 m (100 ft). ...
>
> The Zelena Formation was deposited during the final stagnation of the late Wisconsin ice sheet on the Riding Mountain and Duck Mountain uplands. The ice over the nearby plains remained active somewhat longer (Klassen 1979: 10).

The existence of a chronologically later and stratigraphically higher drift deposit confirms the fact that glacial activity occurred in the plains and valleys surrounding Duck Mountain after Zelena Formation till had been deposited on the uplands. This final till, the Arran Formation,

> ... forms the surface of the Valley River, Westlake and Swan River plains. It overlies the Minnedosa or Zelena Formations.
>
> The Arran Formation was deposited during the advance and retreat of the late Wisconsin glacier east of the Manitoba escarpment and its lobate portions that occupied the re-entrants between the Riding Mountain, Duck Mountain and Porcupine Hills uplands. ... It was the last drift deposited in the map area during the final ice retreat some 13 000 years ago" (Klassen 1979: 10-11).

Glacial Lake Agassiz

The cyclical nature of glacial advances was mirrored by corresponding cycles of glacial retreats. Once the wasting ice had melted back past the height of land in Minnesota, it was confined to the Hudson Bay watershed. Because ice blocked access to Hudson Bay, however, meltwater could not flow northward into it. Instead, increasing amounts of water stayed at the southern edge of the glacier in the form of Glacial Lake Agassiz, named in honour of Louis Agassiz, early geologist and student of the Pleistocene. As the glacier continued its pattern of retreat and readvance, the form of the Lake altered accordingly. Figure 8 illustrates the maximum extent of all stages of Glacial Lake Agassiz combined. The part played by the escarpment as its western edge is easily observed.

Of course the escarpment did not always serve as the western shore of Glacial Lake Agassiz. At various times in its history, the western edge of the Lake lay east of the escarpment. Frequently periods of inactivity occurred, when neither glacial advance nor retreat affected the Lake. During these inactive periods, enough time elapsed to permit the formation of sand and gravel beaches, each marking the western extent of Glacial Lake Agassiz at a particular point in time. These beach ridges both created and solved a problem for the early inhabitants of west-central Manitoba. Because they ran parallel to the escarpment, the ridges effectively blocked natural drainage eastward to the lakes; swampy bogs formed behind them, making direct east-west travel difficult. However, because the ridges were elevated above the surrounding terrain and comprised of well-drained sands and gravels, they became the natural highways of the region, known as "pitching tracks" to the early residents of the province.

> Early on the following morning we arrived at the Ridge Pitching tract, along which we continued for a few miles. ... It is about one hundred yards across, evenly rounded, composed of gravel, and covered to a great extent with the bearberry. On either side are small oaks and aspens, succeeded by marshes. Its altitude above the marsh is about fifteen feet (Hind 1860: II: 62).

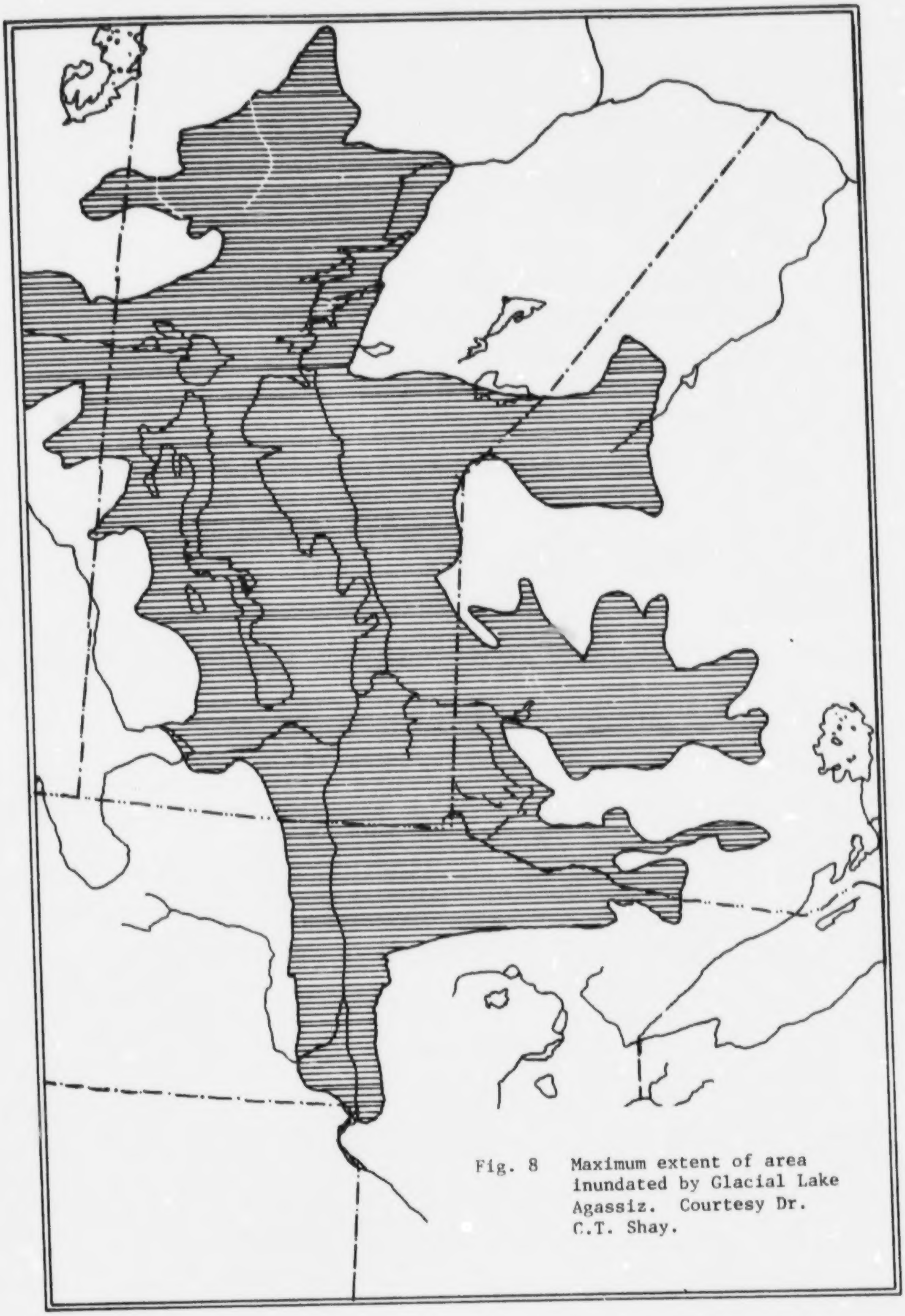


Fig. 8 Maximum extent of area inundated by Glacial Lake Agassiz. Courtesy Dr. C.T. Shay.

These series of ridges are readily visible today between the escarpment and Lakes Manitoba, Dauphin, and Winnipegosis; Highway #10 follows one of them for many kilometres between Dauphin and Swan River.

Postglacial Flora

By 13 000 B.P., west-central Manitoba must have been an impressive sight as viewed from Duck Mountain. To the east, Glacial Lake Agassiz would have filled that part of the Manitoba Lowlands not covered with wasting ice. Likely the valleys of the Swan and Valley Rivers were also filled with water. Only west of Duck Mountain would there have been evidence of a developing soil surface and an emerging vegetation. Much thought has been given to the nature of these colonizing plant forms. Early estimates favoured a vegetation similar to that associated with contemporary glacial margins in the northwestern part of the continent, but pollen diagrams from Riding Mountain do not support this contention.

> There is no evidence of a treeless, tundra zone, although the possibility always exists that a pioneer treeless phase which occupied areas immediately after ice-wasting was not registered in the sediments (Ritchie 1969: 1347).

The first unambiguous palynological evidence from the west-central uplands indicates that between 14 000 and 10 000 B.P., the area was colonized by an early pioneering association of *Picea*, *Artemisia*, *Shepherdia canadensis*, *Juniperus*, *Fraxinus nigra*, *Larix*, *Populus* and *Cyperaceae* that has no contemporary analog. Although the climatic conditions associated with early deglaciation are thought to have been one of cool temperatures with plenty of moisture, it is likely that there was less moisture in conjunction with this early boreal forest than with contemporary examples (Bryson and Wendland 1967: 286).

About 10 000 B.P., in response to a radical shift to a warmer and drier climate, commonly referred to as the "Altithermal", the pollen data from Riding Mountain indicate the presence of grassland in the uplands.

> ... The early *Picea* assemblage was replaced by a treeless vegetation, dominated by grasses and forbs, but also with willows, juniper, and *Shepherdia argentea* in appropriate situations. These shrubs are common in the modern prairie, *Juniperus horizontalis* occupying the upland, xeric sites, and willow and *Shepherdia argentea* being more restricted to bottomlands (Ritchie 1969: 1348).

By 8 000 B.P., the last glacial ice had disappeared from Manitoba. The grasslands extended far beyond the current range of prairie, east through the Interlake area of the province and as far north as The Pas. The location of the boreal forest also reflected the warm, dry climate, with the tree line some 300 km further north than it is today (Ritchie 1976: 1811). Concommitant with the spread of grasslands to the more northerly regions of the province was the northwestern movement of deciduous tree species and the establishment of the birch-poplar-oak forest in the uplands (Ritchie 1967: 228, Table 17). Ritchie's later work on Riding Mountain, however, led him to revise his interpretation of the nature of the upland vegetation at this time.

> ... at about 6500 B.P. the hazelnut totals rise perceptibly, suggesting that Corylus migrated into the area at about that time. Also, the amounts of juniper, grass, and herb pollen decline and Shepherdia argentea disappears. ... At present in the Western Interior, hazelnut is common beyond the boreal forest only in the aspen parkland. That is, it is associated with poplar in areas beyond the southern limit of the boreal forest but it is quite rare in the grassland zone. If we assume that the poplar curve is unrelated to real values for poplar in the vegetation, because of erratic preservation in the sediments, it is possible that this section represented a vegetation similar to the modern Aspen Parkland (Ritchie 1969: 1348).

Approximately 2 500 B.P., at the beginning of the Sub-Atlantic climatic episode (Bryson and Wendland 1967), a return to a cooler and wetter climate was reflected in a shift of the boreal forest southward to its present position and the establishment of essentially contemporary vegetational zones in the province. The uplands coincide with the southern limit of the boreal forest, but reflect a mixture of the vegetational history of their area, rather than the recent dominating boreal species.

> ... The modern vegetation is interesting in its marginally boreal character. While mesic sites on the plateau are dominated by white spruce, birch, and poplar, with larch and black spruce in poorly drained sites and fir locally on alluvium, the steep slopes of the escarpment at the eastern side of the area are occupied by oak savannah and grassland on south-facing slopes. These local prairies have both the floristic and physiognomic characteristics of the plains grasslands (Ritchie 1969: 1348).

Postglacial Fauna

Certainly the early postglacial fauna would have seemed as exotic today as the early floral communities. Unfortunately, few specimens have been recovered from the uplands and even fewer of these have been in datable contexts. Perhaps the first report of post-Pleistocene bone comes from Hind while at Fort Ellice in 1857.

> From Mr. McKay I received a particular account of the 'Great Bones' on Shell Creek, which had long been a source of wonder and awe to the Indians hunting on the left bank of the Assiniboine, and whose magnificant descriptions led me to suppose they might belong to a cetacean, and were worth a day's journey out of our track to visit and examine. They were seen many years ago protruding from the bank of Shell Creek, 20 feet below the prairie's level. Mr. McKay instructed some of the hunters attached to the post to bring them to him, but no Indians would touch them, and the half-breeds only brought a tooth and collar bone, which were stated by a medical gentleman to whom they were shown to have formerly belonged to a mammoth. Mr. Christie, of Fort Pelly, we were told, went to Shell Creek, with a view to collect more specimens; he obtained some ribs, but in a state of crumbling decay; they were sent to Red River Settlement. The Indians had long regarded these ancient relics as the bones of a Manitou and worthy objects of veneration (Hind 1860: I: 312-313).

These bones that Hind discusses are the same specimens referred to by Tyrrell as being recovered from the west bank of the Shell River, just opposite the entrance of its East Branch, on Duck Mountain.

> ... The Indians allege that at this point, huge bones were found at the bottom of a land-slide and were brought to the officer in charge at Fort Pelly, by whom they were forwarded to England. Hon. W.J. Christie, of Brockville, Ont., who was in charge of Fort Pelly at the time, informs me that the bones were shoulder blades, and that in 1853, some years after the

> first bones were brought in, he visited the place, "and examined the spot carefully where the blade was taken out of the river at low water. A landslip had occurred from the bank and carried the bones into the river. I found from cross-questioning my guide, that the Indians had collected the bones, and burnt them on the bank, from superstition, and buried what would not burn. I examined the spot where they had buried the bones, but what remained crumbled to pieces when touched" (Tyrrell 1893: 129-130).

Some of these bones were eventually sent to England, where they were initially identified by Sir John Richardson as belonging to a newly recognized species of elephant, _Elephas rupertianus_, but later reclassified as probably those of a mastodon, _Mastodon giganteus_ (Tyrrell 1893: 130).

Apparently the Shell River bones were not an isolated occurrence, because Hind mentions a similar skeleton described to him by an old Ojibwa hunter who lived in the Lake Dauphin area.

> Ta-wa-pit stayed during the greater part of the night by our camp-fire, talking with the half-breed, smoking and drinking tea. He pointed out the spot near to us, where he was accustomed to take salt from the edges of a spring during the summer months. He described also at length the appearance and virtues of some gigantic bones exposed in the bank of Valley River near where it cuts through the old Lake Ridge. Ta-wa-pit calls these bones a great medicine, and, contrary to the usual custom of the Indians, he now and then takes small fragments, bruises them to powder, and uses them as a medicinal preparation. From his description I infer that the bones are those of a mammoth; his rough drawing of the ribs and teeth in the sand corresponded, in point of dimensions, with those of that gigantic animal (Hind 1860: I: 60).

In addition to the mammoth or mastodon bones, the skull of a musk ox, _Ovibos moschatus_, was recovered from the stream bed of the Valley

River near Grandview (Harington 1970). The carbon-14 date of 8 600 B.P. seems excessively young, however. According to palynological data, at this time period grassland predominated in the region, yet grassland is not the preferred habitat of the musk ox. Perhaps Duck Mountain retained some areas of boreal vegetation, despite the general spread of grassland throughout the upland during the Altithermal. This sort of remnant floral community is not unknown today and could also have existed in the past.

A very significant aspect of these early postglacial faunal remains must be the context of their recoveries. All were associated with either the stream beds or banks of rivers whose sources are on Duck Mountain. Although it is possible that the skeletal remains were transported some distance by water to their eventual places of discovery, it is also most likely that their points of origin were, at the very least, on Duck Mountain near the headwaters of the rivers involved. The skull and attached horn cores of a fossil bison of undetermined species was recovered in a similar fashion from the bed of the Roaring River, which also rises on Duck Mountain (Pettipas 1971). No carbon-14 date was obtained on this specimen, but further north and west in the Swan River Valley, fossil bison bones dating to 10 300 B.P. were recovered during gravelling operations below the Upper Campbell beach ridge in 1979 and 1980 (Gryba 1981).

Drainage

With the obvious exceptions of roads, tourist facilities, lumbering operations and water control structures, the physical appearance of Duck Mountain has altered very little for the last 2 500 years. Certainly fires have periodically destroyed many hectares of forest, with the last major fire occurring in 1961, but no doubt fire also damaged the uplands long before Europeans arrived on the scene. Topographically, the Mountain shows the effects of thousands of years of glacial activity. Shallow lakes and marshes are scattered across the morainal landscape. Alluvial deposits line the many rivers that rise on the Mountain, but the bulk of the landscape consists of various types of moraines, kames, eskers, and outwash deposits.

One suggestion frequently offered to explain why so little is known historically and prehistorically about Duck Mountain involves the lack of major water systems within the Park. "Many early explorers passed through the Duck Mountain/Riding Mountain area but only a few ventured into the mountains. Most preferred to stay on the well-defined waterways" (Welch 1979: 7). Although this reason satisfactorily explains the lack of European knowledge about Duck Mountain, it does not adequately deal with prehistoric utilization or lack of utilization of the uplands. In fact, Duck Mountain is unique in that within its borders are contained the headwaters of more than a dozen rivers and their tributaries (see Figure 4). On the north, the Roaring, Favel, and Sinclair Rivers flow into the Swan River, eventually reaching Lake Winnipegosis by way of Swan Lake. Many streams drain the steep eastern face of the escarpment. The most important of these are the Duck, Sclater, Pine and Garland Rivers, which flow directly into Lake Winnipegosis, as well as the Fork and Fishing Rivers, tributaries of the Mossy River issuing from the northwestern end of Lake Dauphin and also emptying into Lake Winnipegosis. To the south, the Valley River flows through the broad expanse of farm land separating Riding and Duck Mountains, entering Lake Dauphin on its western side. The western face of the Mountain is drained by the Shell River, as well as Big and Little Boggy Creeks. These streams flow into the Assiniboine River, reaching Lake Winnipeg via the Red River, rather than the Lake Winnipegosis-Waterhen River-Lake Manitoba-Dauphin River-Lake Winnipeg route that the other rivers take.

Within the relatively small area of 5 200 km^2, then, are located the headwaters of all of these streams, many of which virtually interlock. When examining the Shell River valley in the fall of 1887, Tyrrell remarked upon the fact that "the north end of the valley for three miles is occupied by Rolling[1] River. ..." (1893:129). No doubt John Tanner provides the best example of how various interconnected water systems were used as thoroughfares. He spent the winter of 1799-1800 trapping and trading on Elk River (Red Deer River). In the spring after sugar was made, Tanner left the Northwest post for the Red River Settlement.

> ... From this trading house we returned by way of Swan River, and the Me-nau-ko-nos-keeg, towards Red River. About the Me-nau-ko-nos-keeg and Ais-sug-se-bee, or Clam River, whose head waters interlock, we stopped for some time to trap beaver ... (James 1956: 76-77).

Tanner's route most likely took him down the Red Deer River to Lake Winnipegosis, up Shoal River and through Swan Lake to the Swan River, on which was located a Northwest Company post. The Swan River connects with the Assiniboine River by a short overland route near Fort Alexandria, where Tanner has already been noted by Daniel Harmon. From Alexandria, Tanner travelled down the Assiniboine, probably crossing to the Shell River before its juncture with the Assiniboine at Asessippi. The Shell and Valley Rivers interconnect in the Angling Lakes region of Duck Mountain, which is where Tanner stopped to trap beaver in the spring of 1800 and where he spent the following two trapping seasons. The Shell River is easily identified as Tanner's "Ais-sug-se-bee," for "ais-sug" means clam (James 1956: 311) and "se-bee" means river (James 1956: 400). The translation of Me-nau-ko-nos-keeg is much more difficult to fathom. On the map produced by Peter Fidler in 1820 (H.B.C.A., P.A.M., B.51/e/1; reproduced in Welch 1979: 9), the Valley River is labelled the "Tow-wat-tin-now," which is corroborated by Tanner, who lists "Tah-wut-te-naug" as the Ojibway word for valley (James 1956: 401). Perhaps Me-nau-ko-nos-keeg refers to a more specific location than the Valley River in general, or maybe it is an Ottawa rather than an Ojibwa word. To date, the meaning of Me-nau-ko-nos-keeg has not been found, but nonetheless, it is apparent from following his movements that Tanner refers to the present Valley River when he talks about "Me-nau-ko-nos-keeg."

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[1] For some inexplicable reason, Tyrrell consistently refers to the Roaring River as the Rolling River; apparently it was a mistake that was never caught in the editing of his report.

Soils

The morainal deposits left by glacial activity on the uplands of Duck Mountain constitute one of the six types of parent materials from which soils are formed. "Morainal materials originated from glacial action. They generally consist of non-stratified well-compacted material containing a heterogeneous mixture of particle sizes" (Eilers, et al. 1977: 22). These parent materials, in conjunction with climate, vegetation, relief, drainage and time, interact to produce soil that is particularly reflective of the specialized conditions under which it has developed. Duck Mountain has been characterized vegetatively as the southern limit of the boreal forest, which means that

> ... the natural vegetation consists predominantly of mixed deciduous forest (birch, aspen, and balsam poplar) and coniferous (evergreen) forest (spruce, tamarack, and jack pine). Since trees have about equal proportions of above- to below-ground growth, the relatively long life of trees as compared to grasses greatly reduced the accumulation of organic matter derived from root material in the soil. Most organic matter in soils under forest vegetation is the result of leaf fall, stem decay, and decomposition of other herbaceous litter. These organic materials usually accumulate in layers above the mineral soil surface.
>
> Litter derived from coniferous forest vegetation is generally lower in nutrients, more acidic, and more resistant to decomposition than that derived from deciduous forest vegetation. Consequently, recycling of nutrients is more rapid in deciduous forests (Eilers, et al. 1977: 22).

In general, the type of soil expected to occur under these forest conditions is a "Grey Luvisol" or "Grey Wooded Soil," as it was formerly designated.

> The genesis of Luvisolic soils is thought to involve the suspension of clay in the soil solution near the soil surface, downward movement of the suspended clay with the soil solution, and deposition of the translocated clay at a depth where downward movement of the soil solution ceases or becomes very slow. Commonly, the subhorizon of maximum clay accumulation occurs above a Ck horizon. The eluvial horizon (Ahe, Ae) commonly has platy structure due perhaps to the periodic formation of ice lenses. Any condition

> that promotes dispersion of clay in the A horizons and deposition of this clay in a discrete subsurface horizon favors the development of Luvisolic soils (Canada Soil Survey Committee 1978: 77).

The most common soil profile encountered on the uplands, then, should contain an A horizon that has been leached of its clay constituents, a B horizon containing these accumulated clay deposits, and a C horizon containing sufficient carbonates to slow down or halt leaching from the B horizon (see Figure 9).

One other soil type, the Brunisol, is also likely to be encountered on the upland.

> Soils of the Brunisolic order have sufficient development to exclude them from the Regosolic order, but they lack the degrees or kinds of horizon development specified for soils of other orders. The central concept of the order is that of soils under forest having brownish colored Bm horizons, but the order includes soils of various colors having both Ae horizons and weakly expressed B horizons of accumulation of either clay (Btj) or amorphous Al and Fe compounds (Bfj), or both (Eilers, et al. 1977: 33).

A Eutric Brunisol, one of the Great Groups within the Brunisolic Order, is distinguished by a pH level greater than 5.5 (slightly acid to neutral), a B horizon that differs in colour and/or structure from the A horizon, or contains a weak expression of iron or clay accumulation (Bfj, Btj). An Eluviated Eutric Brunisol, in addition to the above characteristics, also possesses an eluviated Ae or Aej horizon (see Figure 9). A comparison of the two profiles in Figure 9 demonstrates the difficulties that can occur in distinguishing an Orthic Grey Luvisol from an Eluviated Eutric Brunisol in field situations.

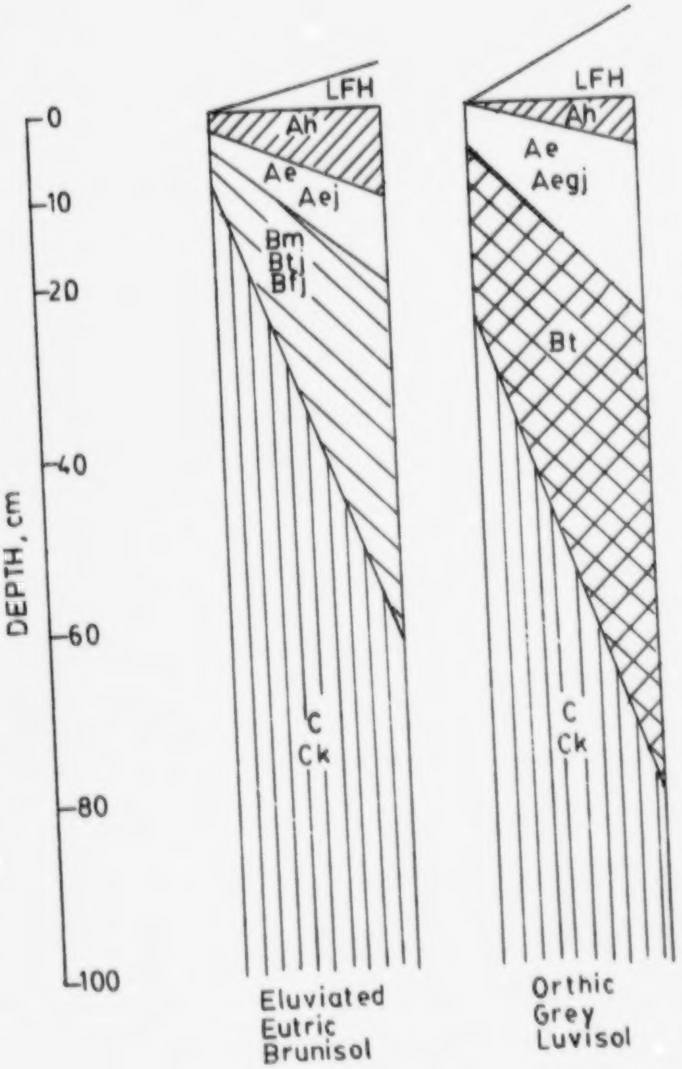
DEPTH, cm
0
10
20
40
60
80
100
LFH
Ah
Ae
Aej
Bm
Btj
Bfj
C
Ck
Eluviated
Eutric
Brunisol
LFH
Ah
Ae
Aegj
Bt
C
Ck
Orthic
Grey
Luvisol

Fig. 9 Brunisol and luvisol soil profiles (after the Canadian System of Soil Classification 1978).

Climate

According to the global climatological classifications devised by Koppen (1936), western Manitoba falls into the Dfb zone.

> ... This is an area which lies in the centre of the continent, a great distance from the oceans and their moderating effect on temperatures. Summer temperatures are higher, winter temperatures lower, and the annual range much greater than the world average for the latitude. The area is sub-humid and has a definite summer maximum of precipitation. Approximately 75 percent of the precipitation falls as rain during the period of April to October and 25 percent as snow during the five winter months of November to March (Ehrlich, *et al*. 1959: 23).

Within this broad region, however, are many local variations. The most notable factor affecting climate in the western part of the province is elevation. Table 1 compares the mean monthly temperatures between Dauphin (289 m a.s.l.) and Russell (571 m a.s.l.). Over the course of a year, the mean annual temperature at Dauphin averages 2.1° C higher than at Russell.

Precipitation averages 43 cm annually, ranging between 25 and 66 cm per year. There is more rainfall in the eastern portion of the uplands. The month of June usually receives the most precipitation, 5-8 cm, while December and February receive only 2 cm each (Klassen 1979: 2). Local conditions also seem to have a significant effect on the amount of precipitation, although the differences here are not so dramatic as temperature variations. A comparison of Dauphin with Russel shows an annual average of 2.5 cm less precipitation for the uplands. "However, short-term records of summer precipitation that have been kept in the Riding Mountain

TABLE 1[1]

A Comparison of Mean Monthly Temperatures in Degrees Celsius

Recorded at Dauphin and Russell, Manitoba

STATION	J	F	M	A	M	J	J	A	S	O	N	D	YEAR
Dauphin	-17.7	-14.8	- 7.9	3.1	10.7	15.9	19.3	17.7	11.9	6.0	- 4.3	-12.9	2.3
Russell	-19.7	-18.3	-10.4	1.9	9.6	14.5	17.4	15.8	10.2	3.5	6.9	-15.2	0.2

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[1] Adapted from Ehrlich, _et_ _al_. 1959: 25.

National Park indicate that these hilly uplands receive slightly more rainfall than the surrounding areas" (Ehrlich, et al. 1959: 24). More recent records kept at the Riding Mountain Research Station and the Durban Ranger Station on Duck Mountain indicate as much as 50% more rainfall in the mountains than on the surrounding lowlands (Witty 1973: 103).

Flora

Duck Mountain Provinical Park and Forest Reserve contain within their boundaries examples of three distinct vegetation zones -- prairie, parkland and boreal forest -- each of which is comprised of specific plant associations. Consisting of less than 1% of the total Park and Forest Reserve area, the upland prairies are crucial for the survival of the Park's elk population, but are considered precarious because of their limited size. The prairies are found in two locations within the Reserve: on benches of the Roaring River valley and in bottomlands adjacent to the Shell River (Figures 10 and 11). The association of plants characteristic of these prairies is termed a "Seasonal, Dry, Short-Grass Meadow." Studies of vegetation plots in these two areas (McCready, et al. 1980) revealed the Roaring River meadows to contain more true prairie plant species than those along the Shell River. This occurrence is not unexpected, considering that the Shell River meadows are bisected by P.R. 367 and have been the location of reforestation projects and cattle grazing for many years. The opportunity for the introduction of foreign plant species has been obviously quite high. The Roaring River meadows, on the other hand, have remained basically

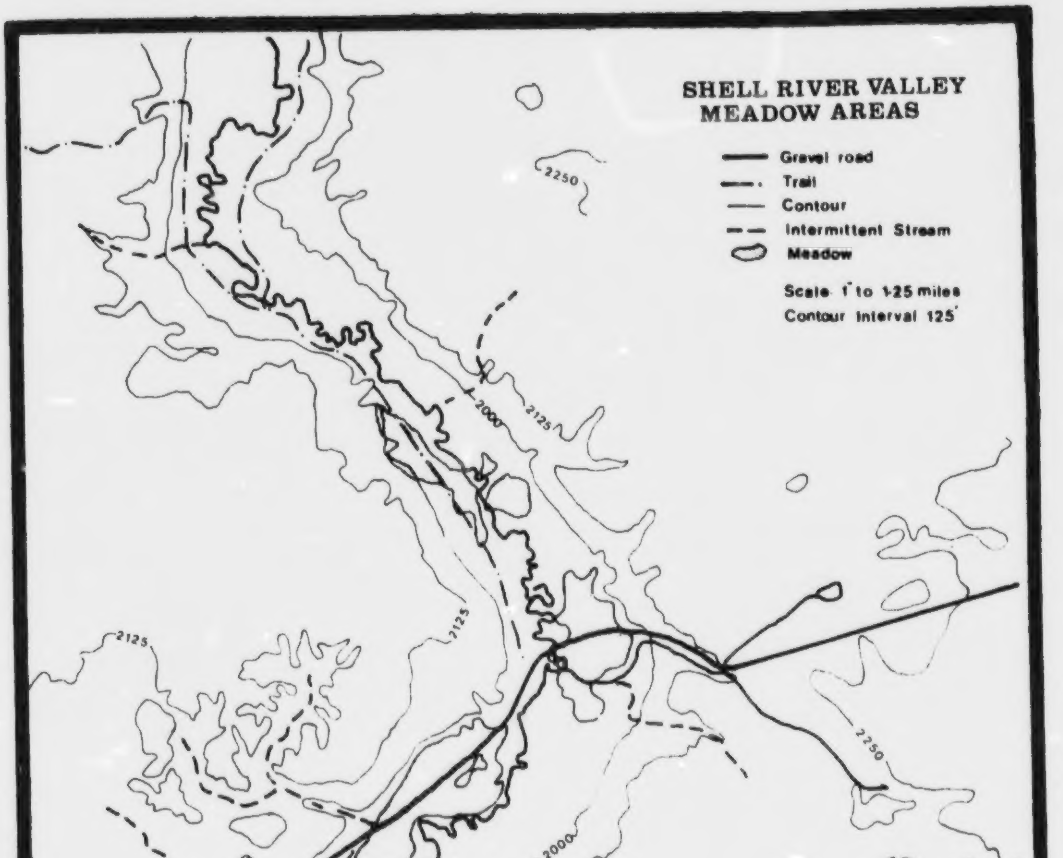
SHELL RIVER VALLEY
MEADOW AREAS
Gravel road
Trail
Contour
Intermittent Stream
Meadow
Scale 1" to 1·25 miles
Contour interval 125'
2250
2000
2125
2125
2125
2125
2000
2125
2250
2250
2125
2125
SHELL RIVER
Wine Lake

Fig. 10 Shell River Valley meadow areas. Courtesy Manitoba Parks Branch.

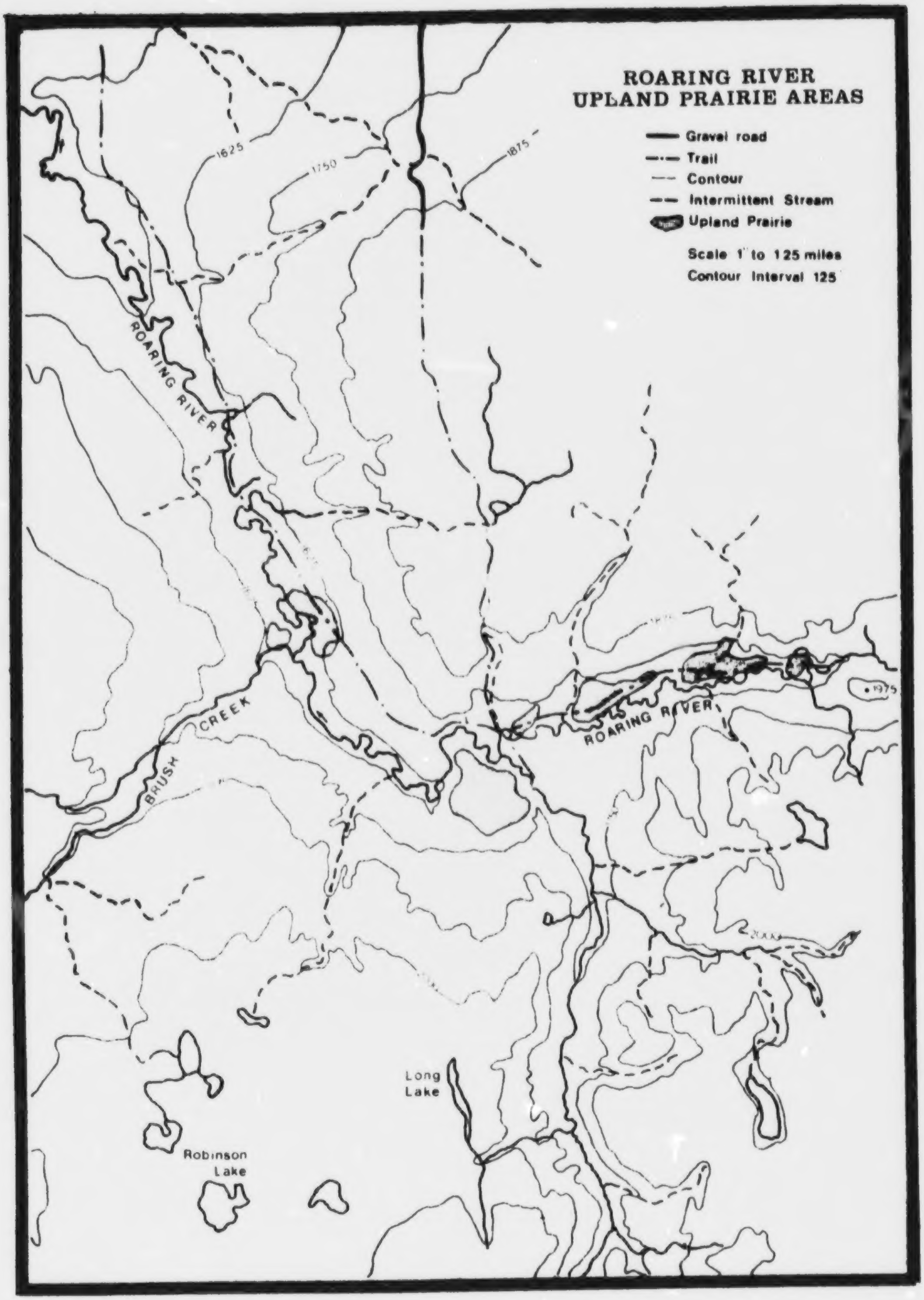
ROARING RIVER
UPLAND PRAIRIE AREAS
Gravel road
Trail
Contour
Intermittent Stream
Upland Prairie
Scale 1" to 1.25 miles
Contour Interval 125'
1625
1750
1875
ROARING RIVER
BRUSH CREEK
ROARING RIVER
1975
2000
Long Lake
Robinson Lake

Fig. 11 Roaring River Upland prairie areas. Courtesy Manitoba Parks Branch.

isolated. Nearby lumbering operations have not disturbed their unique character and the only intervention necessary for the maintenance of the prairie species has been occasional burnovers (McCready, et al. 1980: 32).

A parkland vegetation zone is found on the eastern slopes of the escarpment, where alluvial deposits have created a richer soil regime. Here oak, elm, maple and ash are associated in locally favourable micro-environments. These more southerly species are not confined to the eastern slopes, however, for elm (Ulmus americana), green ash (Fraxinus pennsylvanica) and Manitoba maple (Acer negundo) were noted in the area surrounding the Teepee Site, EjMf-1 (Hanna 1973: 7).

By far the major portion of the vegetation covering Duck Mountain can be considered boreal forest in nature. Species composition varies considerably, depending on the amount of moisture at a given site.

> The first type occurs in wet swamp and bog areas where black spruce with scattered tamarack stands form the overstory. Ground cover consists of labrador tea, club-moss and less common plants such as northern bog violet, bog orchid and pitcher-plant.
>
> Between this wet first type and well-drained second type, a mixture of moist-site plants including balsam poplar, scrub birch and speckled alder can be found on the edge of swamps and low depressions.
>
> Possessing well-drained soils, the second type of forest cover is composed of a large variety of tree species including white spruce, trembling aspen, jack pine in separate stands or an admixture of all three species. Balsam fir and white birch, respectively, are found in association with white spruce or trembling aspen and jack pine. Ground cover beneath these plants consists of such plants as bunchberry, sarsaparilla, low gooseberry and

> prickly rose. The amount and kind of ground cover varies greatly according to the amount of disturbance and canopy. ... Under climax conditions the number and variety of ground flora is greatly reduced to a few species which can tolerate shade. Here lichens, mosses, twinflower, round-leaved orchids and western Canada violet replace less tolerant ground flora (Witty 1973: 109-110).

Considering the historically documented incidence of fire, as well as presumed prehistoric occurrences, information about the association of plant species connected with burned-over areas is as important to an understanding of Duck Mountain's floral resources as knowledge of the established vegetation zones. In an area designated an "Evergreen Steppe," covering 10% of the Park's surface, the regenerated plant associations following the 1961 fire were studied (McCready, et al. 1980). Again, moisture seemed to determine the species of plants found associated with one another. On dry sites, dense stands of jack pine interspersed with trembling aspen and white birch comprised the overstory. There was no zone of shrubs and ground cover consisted primarily of fireweed and mosses. Intermediate locations contained trembling aspen (86%) and balsam poplar (14%) as the overstory, with white spruce, trembling aspen, balsam poplar and willow predominating as shrubs, and fireweed comprising the ground cover. Moist sites had no tree-sized specimens as an overstory. Of the shrubs, most were willow with a few jack pine, white spruce, trembling aspen, speckled alder, and white birch individuals also present. Mosses provided the main ground cover.

Fauna

As one would expect from such a remote and scantily populated area of the province, Duck Mountain contains a variety of economically important fauna; "the rugged plateau and ravines have ensured the survival of an isolated and diversified ecosystem" (Witty 1973: 113). Table 2 lists those mammal resources (food or fur) found on Duck Mountain, which are or were exploited as economically important.

Despite the isolated nature of Duck Mountain, the steady encroachment of agricultural activities on its perimeter has had a detrimental impact on many of the larger animals within its borders. Elk are especially affected because their pre-agricultural winter lowland habitat outside the Park has become farm land. Rather than migrating from upland to lowland in the winter, elk now congregate near the two upland prairies on the Roaring and Shell Rivers. These two meadows, amounting to less than 1% of the Park's total area, simply cannot support a large elk population. Mule deer are also migratory; the same constriction of their lowland habitat, plus competition from immigrating white-tailed deer populations, may have eradicated them completely from the Mountain. Moose have been much less affected by agricultural activities than elk or mule deer. Their solitary nature makes it unlikely that there will ever be a problem of too many moose at any given location. Because moose prefer pioneer or sub-climax vegetation, their movement into recently logged or burned-over areas can generally be predicted. After the 1961 fire, many moose moved into the western edge of the burn (Witty 1973: 118).

TABLE 2[1]

Economically Exploited Mammals of Duck Mountain

FAMILY, GENUS AND SPECIES	COMMON NAME
Canidae	
Canis latrans	Coyote
Canis lupus	Grey Wolf
Canis vulpes	Red Fox
Castoridae	
Castor canadensis	Beaver
Cervidae	
Alces alces	Moose
Cervus canadensis	Elk
Odocoileus hemionus	Mule Deer
*_Odocoileus virginianus_	White-Tail Deer
Erethizontidae	
Erethizon dorsatum	American Porcupine
Felidae	
Felis concolor	Mountain Lion
Lynx lynx	Lynx
Leporidae	
Lepus americanus	Snowshoe Hare
Mustelidae	
*_Martes americana_	Marten
Martes pennanti	Fisher
Mephitis mephitis	Skunk
Mustela erminea	Ermine
Mustela nivalis	Least Weasel
Mustela vison	American Mink
Procyonidae	
*_Procyon lotor_	Racoon
Ursidae	
Ursus americanus	Black bear
Zapodidae	
Ondatra zibethicus	Muskrat

---

[1] Adapted from McCready _et al_. 1980: 80-81.

[2] Latin names and species order according to Banfield 1974.

* Recent migrant; probably not aboriginal.

Fish comprise another major food source on Duck Mountain. Today it is difficult to imagine what early fish populations must have been like, because direct and indirect intervention in the habitat have affected kinds and numbers of species greatly. Water control structures, e.g., the Valley River dam, have altered habitat; accidental chemical spills have poisoned entire lakes; and non-native species have been introduced to lakes and streams in order to lure sport fishermen to the Park. Natural populations of pike and perch are still found in the Shell, Valley and Garland Rivers, while the Pine and Roaring Rivers contain trout (Witty 1973: 124). Members of early pioneer families in the Grandview District recalled spearing suckers when they swarmed up the creeks around Grandview in the early spring (Preston 1976: 41, 81, 108). Table 3 lists the naturally occurring species of fish from Duck Mountain and the surrounding lowlands.

Birds, especially waterfowl, also inhabit the Park and Forest Reserve, although the highest concentration of breeding grounds is found to the east in the marshes along the western shore of Lake Winnipegosis. Some species do breed in the upland region, however, and many other migrant species are present for relatively brief periods each year. In addition to the birds themselves, the eggs of nesting waterfowl could be utilized as food. Interestingly, fragments of a large egg were recovered from the lowest levels of the Teepee Site in association with Agate Basin projectile points (Hanna 1973: 13). Table 4 lists the avifaunal resources of presumed economic value recorded during the 1978 natural resources inventory on Duck Mountain.

TABLE 3[1]

Naturally Occurring Fish Species from Duck Mountain

FAMILY, GENUS AND SPECIES	COMMON NAME
Catostomidae	
Catostomus commersoni	White Sucker
Moxostoma macrolepidotum	Northern Redhorse
Cottidae	
Cottus bairdi	Mottled Sculpin
Cyprinidae	
*Covesius plumbeus	Lake Chubb
Notropis atherinoides	Emerald Shiner
Notropis blennius	River Shiner
Notropis heterolepis	Blacknose Shiner
Notropis hudsonius	Spottail Shiner
Notropis volucellus	Mimic Shiner
Pimephales promelas	Fathead Minnow
Rhinichythys atratulus	Blacknose Dace
Rhinichythys cataractae	Longnose Dace
*Semotilus atromaculatus	Creek Chubb
Semotilus margarita	Pearl Dace
Esocidae	
Esox lucius	Northern Pike
Gadidae	
Lota lota	Burbot
Gasterosteidae	
Culaea inconstans	Brook Stickleback
Percidae	
Etheostoma exile	Iowa Darter
Etheostoma nigrum	Johnny Darter
Perca flavescens	Yellow Perch
*Percina maculata	Blackside Darter
*Percina shumardi	River Darter
Stizostedion vitreum	Walleye
Salmonidae	
Coregonus clupeaformis	Lake Whitefish
Salvelinus fontinalis	Brook Trout
Salvelinus namaycush	Lake Trout

[1] Adapted from McCready et al. 1980: 82-83.

* Questionable, but present in the Shell and Valley Rivers outside the Park.

TABLE 4[1]

Avifaunal Resources of Duck Mountain

FAMILY, GENUS AND SPECIES[2]	COMMON NAME
Anatinae	
Anas americana	American Widgeon
Anas crecca	Common Teal
Anas discors	Blue-winged Teal
Anas platyrhynchos	Mallard Duck
Anas strepera	Gadwall
Ardeidae	
Ardea Herodias	Great Blue Heron
Botaurus lentiginosus	American Bittern
Aythyinae	
Aythya affinis	Lesser Scaup
Aythya collaris	Ring-necked Duck
Bucephala albeola	Bufflehead
Bucephala clangula	Common Goldeneye
Gaviidae	
Gavis immer	Common Loon
Merginae	
Mergus merganser	Common Merganser
Pelecanidae	
Pelecanus erythrorhynchos	White Pelican
Podicipedidae	
Podiceps auritus	Horned Grebe
Podiceps grisegena	Red-necked Grebe
Podilymbus podiceps	Pied-billed Grebe
Tetraonidae	
Bonasa umbellus	Ruffed Grouse
Canachites canadensis	Spruce Grouse

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[1] Adapted from McCready, *et al*. 1980: 101-125; only those species likely to have been economically useful and noted as present in quantity in 1978 are included.

[2] Latin names and species order according to Peterson 1961.

III. EXCAVATIONS AT EjMg-2, CHILDS LAKE

> Childs Lake is situated in the southwest corner of Duck Mountain Provincial Park. It is the largest water body in Duck Mountain Provincial Park, having a surface area of 2065 acres, 13.5 miles of shoreline, a maximum depth of 158 feet and a mean depth of 37 feet. The water clarity is excellent and water temperature is suitable for water-oriented recreational pursuits including swimming, fishing, powerboating, canoeing and water-skiing.
>
> Childs Lake supports an active year-round sport fishery. Variances in water depth from shallow bays to deep, cold sections make the lake a suitable habitat for many species of fish. The lake supports a variety of native and stocked fish species which include lake trout, splake, rainbow trout, walleye and northern pike.
>
> As stated previously, Childs Lake has been designated as an area within the park where high-density recreation use and development is to be encouraged (Commercial Investment Opportunity 1981: 3-4).

Objectives

As a result of the archaeological survey conducted in areas of Duck Mountain Provincial Park to be affected by expansion of tourist facilities (Carmichael 1980), a crew of ten from the Historic Resources Branch spent 13 weeks from May through August, 1981, at EjMg-2 on Childs Lake (Figure 12). In addition to being the largest site located during the 1980 survey, EjMg-2 had already suffered and would undoubtedly continue to suffer disturbance from the consistent, though inadvertent activities of Parks personnel, fishermen, fire fighters, cottage builders and owners, as well as more transient tourists.

Objectives for the project were quite straightforward and simple:

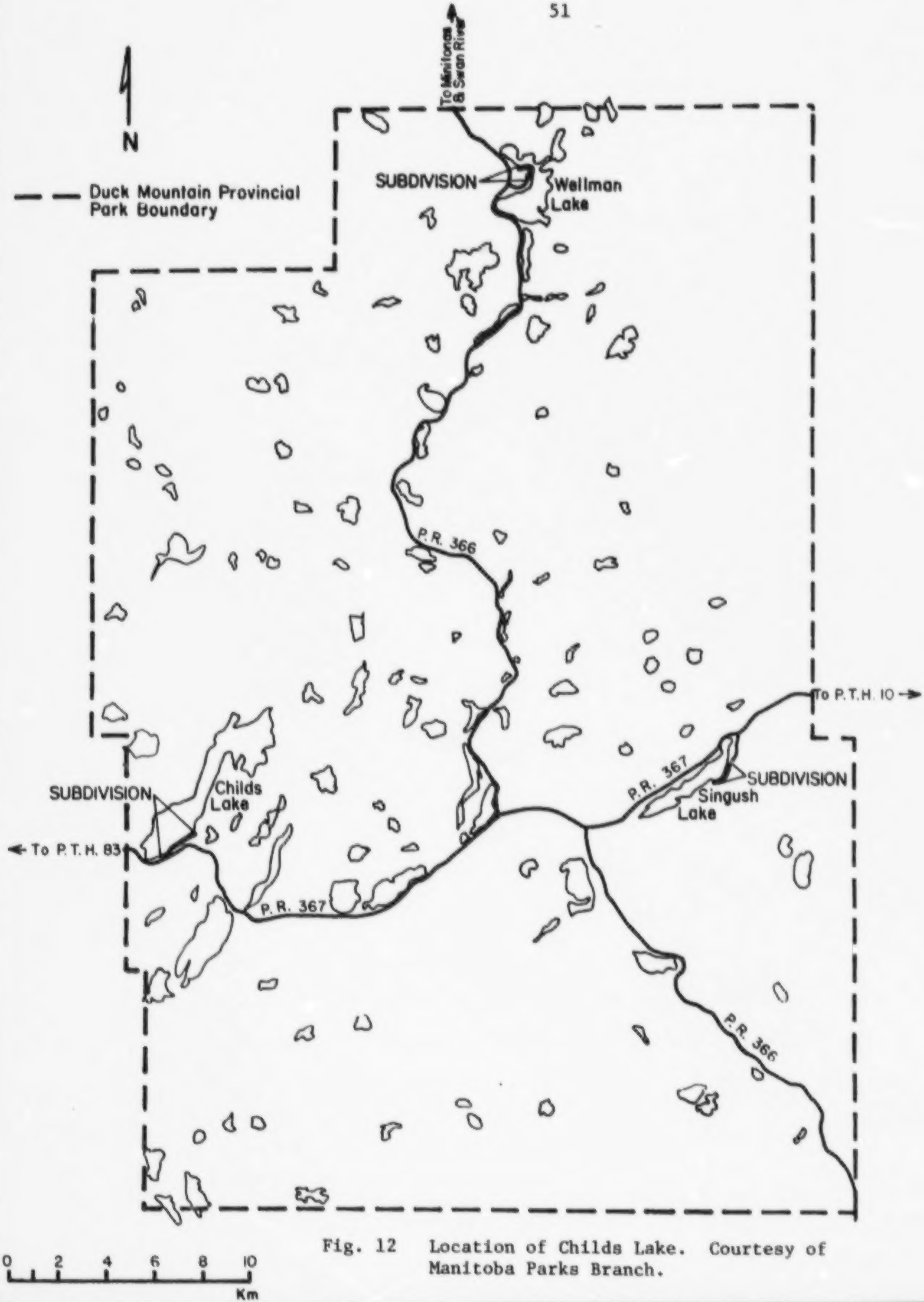

To Minitonas & Swan River
N
Duck Mountain Provincial Park Boundary
SUBDIVISION
Wellman Lake
P.R. 366
To P.T.H. 10
P.R. 367
SUBDIVISION
Singush Lake
SUBDIVISION
Childs Lake
To P.T.H. 83
P.R. 367
P.R. 366
0
2
4
6
8
10
Km

Fig. 12 Location of Childs Lake. Courtesy of Manitoba Parks Branch.

1) to determine the parameters of the site as accurately as possible; and
2) to salvage as much information from undisturbed portions of the site as was feasible given time constraints.

Several more specific areas of investigation had been suggested by Carmichael (1980: 14-15) and these questions would also be considered:

1) how many cultural components are present at EjMg-2?
2) do the artifacts recovered represent the remains of small groups of people using the site over a long period of time, or rather large groups of people for short periods?
3) with the creek as a natural intrasite boundary, can prehistoric social organization be studied from the artifactual recoveries?
4) what patterns of resource exploitation can be established?
5) are there satellite camps located nearby?
6) in what season(s) of the year was the site occupied?
7) what can the site contribute to the question of cultural continuity in the region?

Location

EjMg-2 is located near the southern end of Childs Lake on its southeastern shore (Figure 13). This region of the Lake has been devoted primarily to recreational facilities and contains areas designated for both day and seasonal campers. An extensive hiking trail runs up the west side of the Lake and a boat launch near the northern end of the new campground provides public access to the Lake. One of the earliest sites to be recognized in the Park, EjMg-1, is also located at the southern

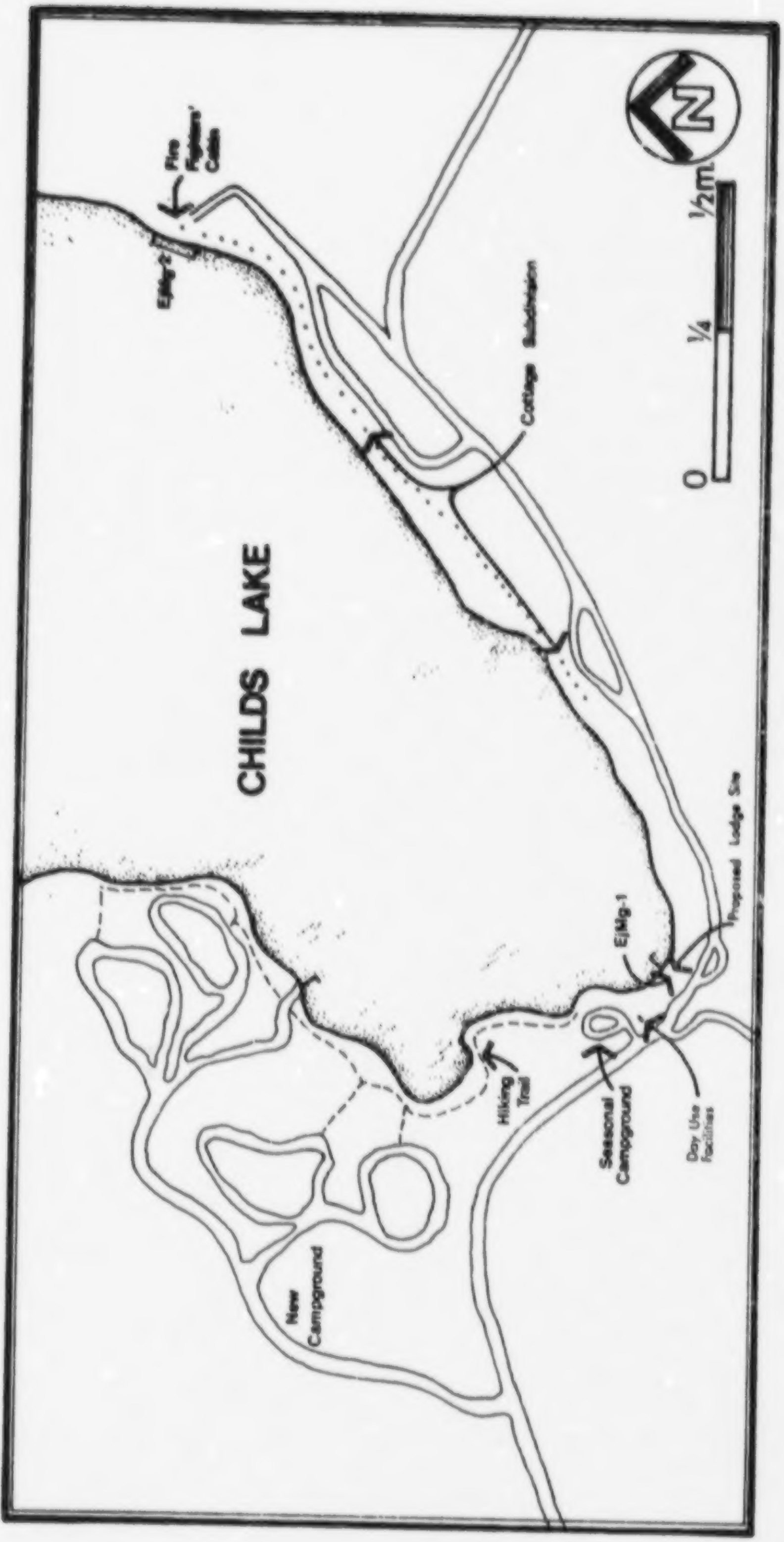

CHILDS LAKE
EjMg-2
Fire Fighters' Cabin
Cottage Subdivision
Proposed Lodge Site
EjMg-1
Hiking Trail
Seasonal Campground
Day Use Facilities
New Campground
0
¼
½m
N

Fig. 13 Southern end of Childs Lake, showing location of EjMg-2.

end of Childs Lake. It has been completely disturbed by construction of day camping facilities and the various activities that are carried on at the locale. Some 52 cottage lots have been laid out along the southeastern shore of Childs Lake. Although some cottages have been in place for many years, the majority were under construction during the summer of 1981. At the northern end of the cottage lots, a cabin belonging to the Department of Natural Resources serves as a storage depot for fire fighting equipment. Interior access roads have been bulldozed the length of the subdivision, connecting the cottage lots to P.R. 367. The fire fighters' cabin sits squarely within the boundaries of EjMg-2 (Figure 14, Plate 1).

The site is quite large, extending southwest from the cabin along the ridge into the last two cottage lots. Artifacts were surface collected on these lots in May, 1981, and presumably relate to EjMg-2. Childs Lake limits the site on the northwest, with a sand and gravel beach lining its shore. Although a prominent ridge lies behind the beach, toward the northern end of the site the ridge slopes downward gradually, until ready access is provided to the Lake. A dock has been installed for use in launching boats (Plate 2). Further north of the dock, a small creek enters Childs Lake (Plate 3), draining Hickey Lake to the east. Hickey Lake is now artificially dammed and utilized as a holding pond for sport fish prior to their release into Childs Lake. In his 1980 survey, Carmichael located artifacts for some distance north of the creek, although the density of materials was not nearly so high as south of it. On the southeast, the site is bounded by the access

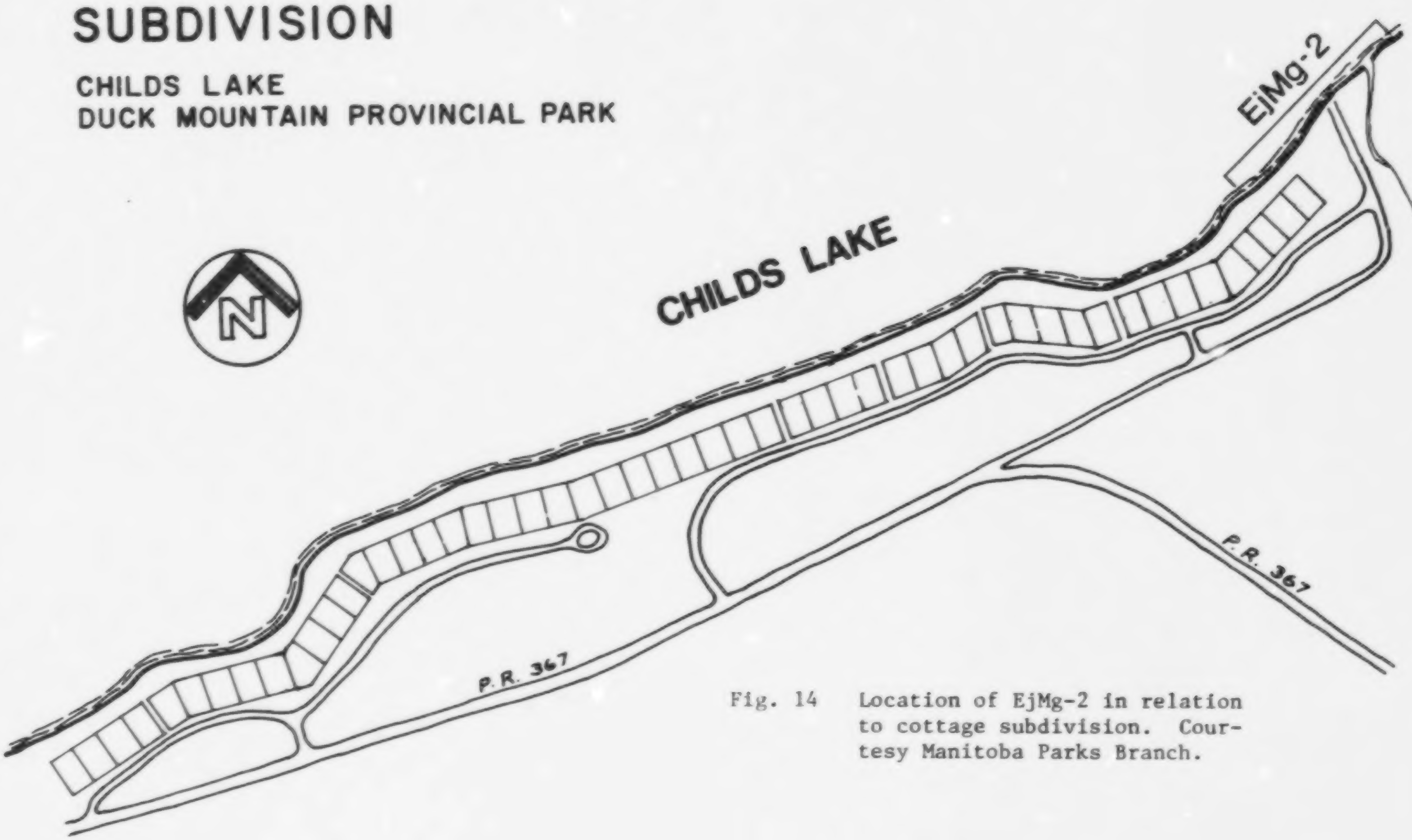

SUBDIVISION
CHILDS LAKE
DUCK MOUNTAIN PROVINCIAL PARK
N
CHILDS LAKE
EjMg-2
P.R. 367
P.R. 367

Fig. 14 Location of EjMg-2 in relation to cottage subdivision. Courtesy Manitoba Parks Branch.

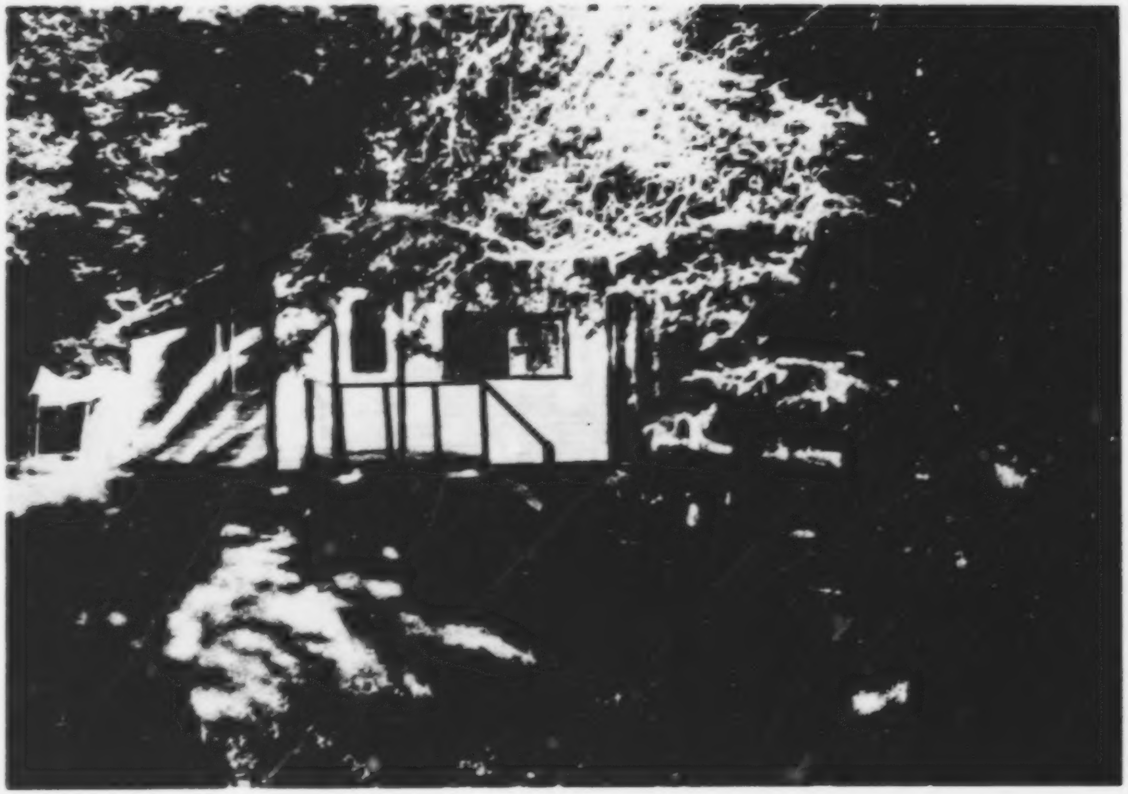


Plate 1   Fire fighters' cabin at EjMg-2.

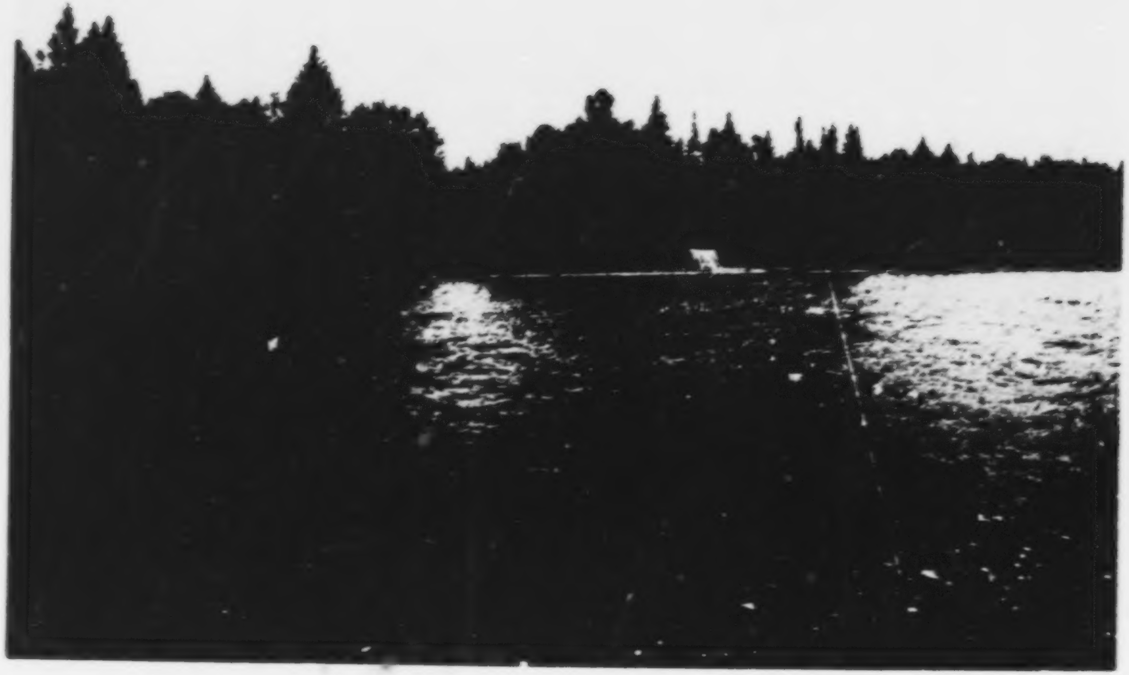


Plate 2 Docking area at EjMg-2.

Plate 3 Mouth of Hickey Creek at its entrance to Childs Lake.

road. Again, some artifacts were found in the road cut in 1980, but the majority of recoveries were located nearer the Lake. For practical reasons, it was decided to concentrate investigative efforts on that wedge-shaped piece of land bounded by the Lake, the creek, the access road, and the property line of the most northerly cottage lot. This area, approximately 160 m in length and 100 m in width at its maximum, contained a fair amount of relatively undisturbed land, although the expected increase in population along the southeastern shore of Childs Lake would insure that it did not remain undisturbed for very long.

A considerable portion of the site was visibly disturbed and as investigations proceeded, indications of additional disturbance were discovered. Three buildings were present on the site when the crew arrived in May: the fire fighters' cabin, an outdoor biffy used frequently by people constructing nearby cottages, and a former stable (Figure 15). A gravel drive connecting with the access road and running between the stable and cabin led to the dock on the lake front. A concrete pad, formerly the floor of another building, lies to the east of the path and opposite the cabin. Early in May, Parks personnel installed another outdoor biffy directly south of the concrete pad. A second path led from the cabin southwest along the ridge to the cottage lots. A permanent fire pit and picnic tables were located in front of the cabin on the crest of the ridge. This central portion of the site, containing the buildings and the two paths, was quite worn down by repeated foot and some vehicular traffic; lithic debris and occasional worked flakes or tools literally lay on the soil surface in

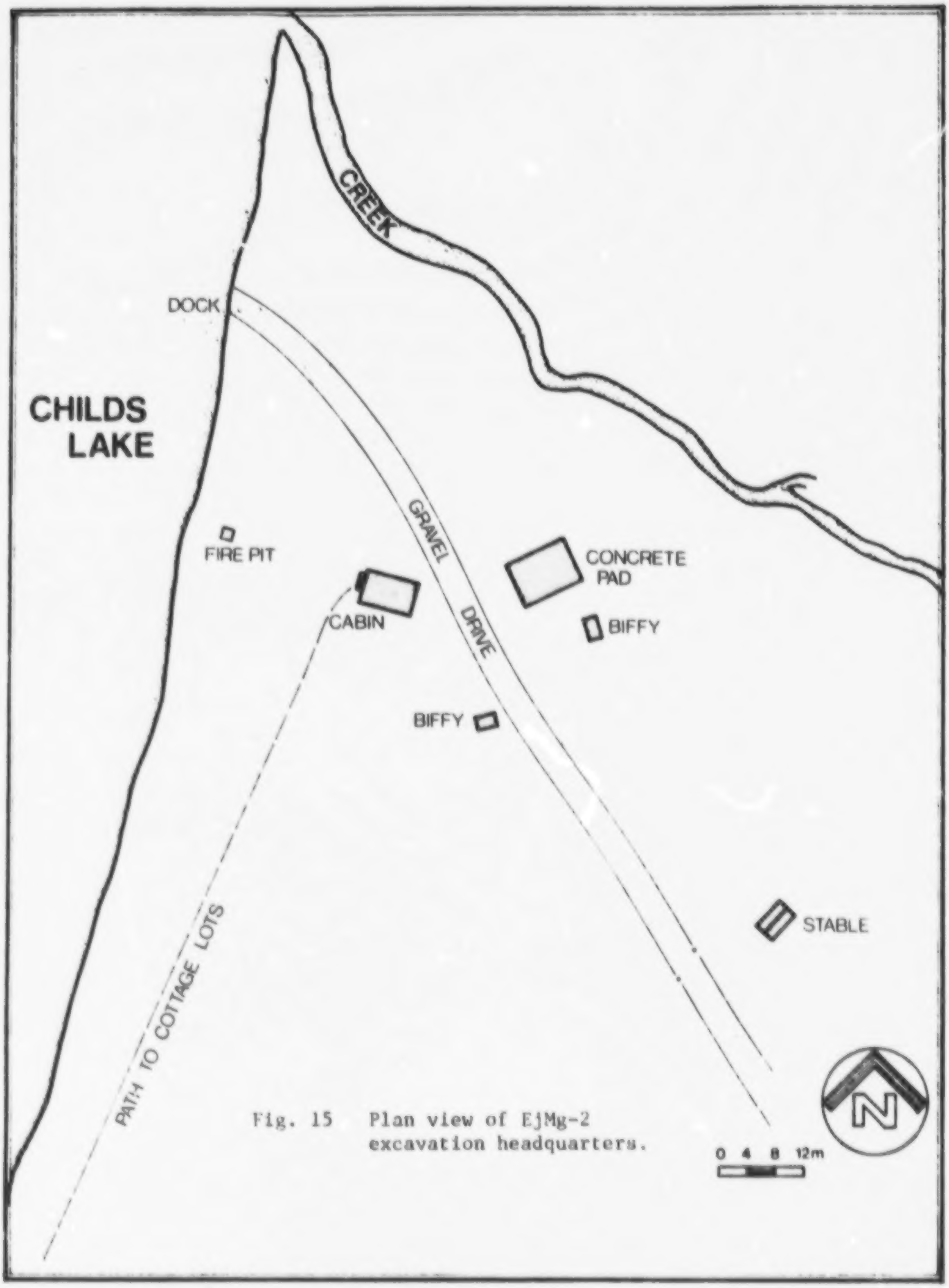

CREEK
DOCK
CHILDS LAKE
GRAVEL DRIVE
FIRE PIT
CONCRETE PAD
CABIN
BIFFY
BIFFY
STABLE
PATH TO COTTAGE LOTS
N
0 4 8 12m

Fig. 15 Plan view of EjMg-2 excavation headquarters.

these locations. In order to minimize the crew's effect on undisturbed portions of the site, personal and equipment tents were erected adjacent to the existing structures in the central section. The fire fighters' cabin was utilized as a project office, kitchen, and recreational center.

With the exception of the areas immediately surrounding the buildings and paths, EjMg-2 is covered with forest and underbrush. The overstory consists of white spruce (Picea glauca), trembling aspen (Populus tremuloides) and white birch (Betula papyrifera), with heights ranging from 9 - 22 m and trunk diameters falling within the 20 - 60 cm range. Tree size is consistent with age estimates of 90 to 95 years for the largest specimens. The Childs Lake region burned last in 1885; therefore, the largest trees on the site cannot exceed 95 years in age (Bob McKenzie, Resource Technician, Department of Natural Resources, Dauphin, Personal Communication). The understory is composed primarily of aspen and white spruce, as well as beaked hazelnut (Corylus cornuta) and low-bush cranberry (Viburnum edule).

At the southern end of the site, near the cottage lot boundary, a large oval depressed area approximately 30 x 15 m contained standing water for most of the field season. With the exception of this swampy terrain and frequent local depressions caused by the upthrusting roots of fallen trees, however, the surface of the site is relatively level. The only major difference in elevation occurs between the gravel beach and the ridge which, at the southern end of the site, is some 3 - 4 m higher than the beach (Figure 16).

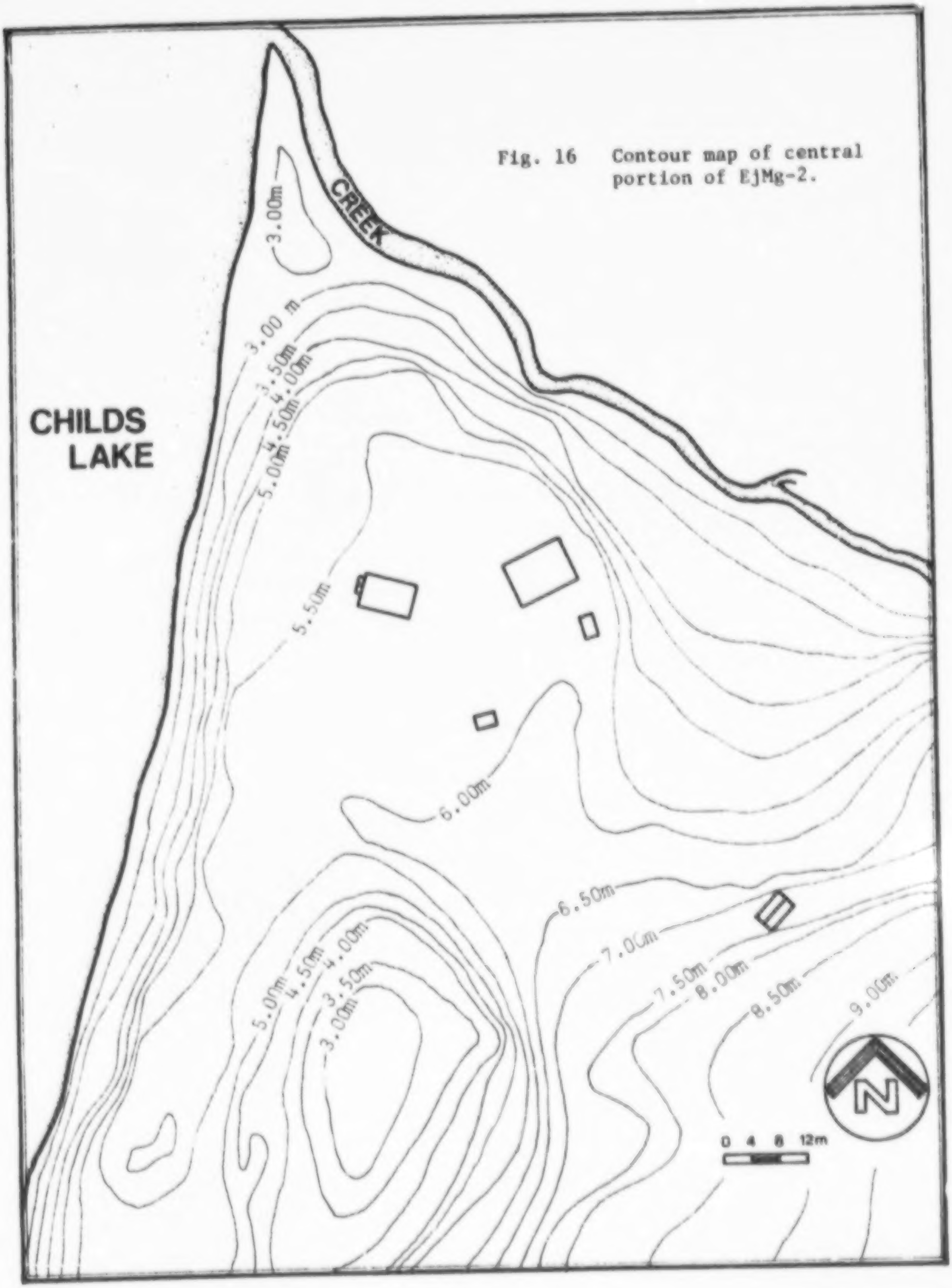


Fig. 16 Contour map of central portion of EjMg-2.

CHILDS LAKE
CREEK
3.00m
3.00 m
3.50m
4.00m
4.50m
5.00m
5.50m
6.00m
6.50m
7.00m
7.50m
8.00m
8.50m
9.00m
5.00m
4.50m
4.00m
3.50m
3.00m
N
0 4 8 12m

Mapping

The first task connected with mapping EjMg-2, that of determining a site datum, was easily accomplished by using the metal surveyor's peg marking the northwest corner of the last cottage lot. This peg was designated 0N 0E and from it a grid of 25 m squares was established for the site. Theoretically, each of the 25 grids (labelled I - XXV) contained 625 m^2, but in reality some grids encompassed far less land surface because the lakeshore, creek, or access road cut across them (Figure 17).

Obviously, not every grid was of equal archaeological potential. For example, the depressed swampy area did not appear promising as a location for artifacts, nor could the grids containing the cabin and other outbuildings be considered undisturbed. Therefore, the 25 grids were priorized on a scale of 1 to 4, with a #1 rating given to those grids that seemed most likely to contain undisturbed artifactual remains. It was decided to put test units within the most highly rated grids first, moving into other areas if time permitted.

Because essentially no subsurface information was available for EjMg-2, other than the small strat pit dug in 1980, a stratified random sample seemed most appropriate for this particular situation.

> In a stratified random sample, the total area is divided into several strata and an independent random sample is taken from each stratum. ... This procedure can be used to mitigate the problem of uneven areal coverage resulting from simple random sampling. By dividing the population into many geographically dispersed strata and then drawing a fixed portion of each stratum, the researcher ensures an even areal coverage of the population (Redman 1974: 11).

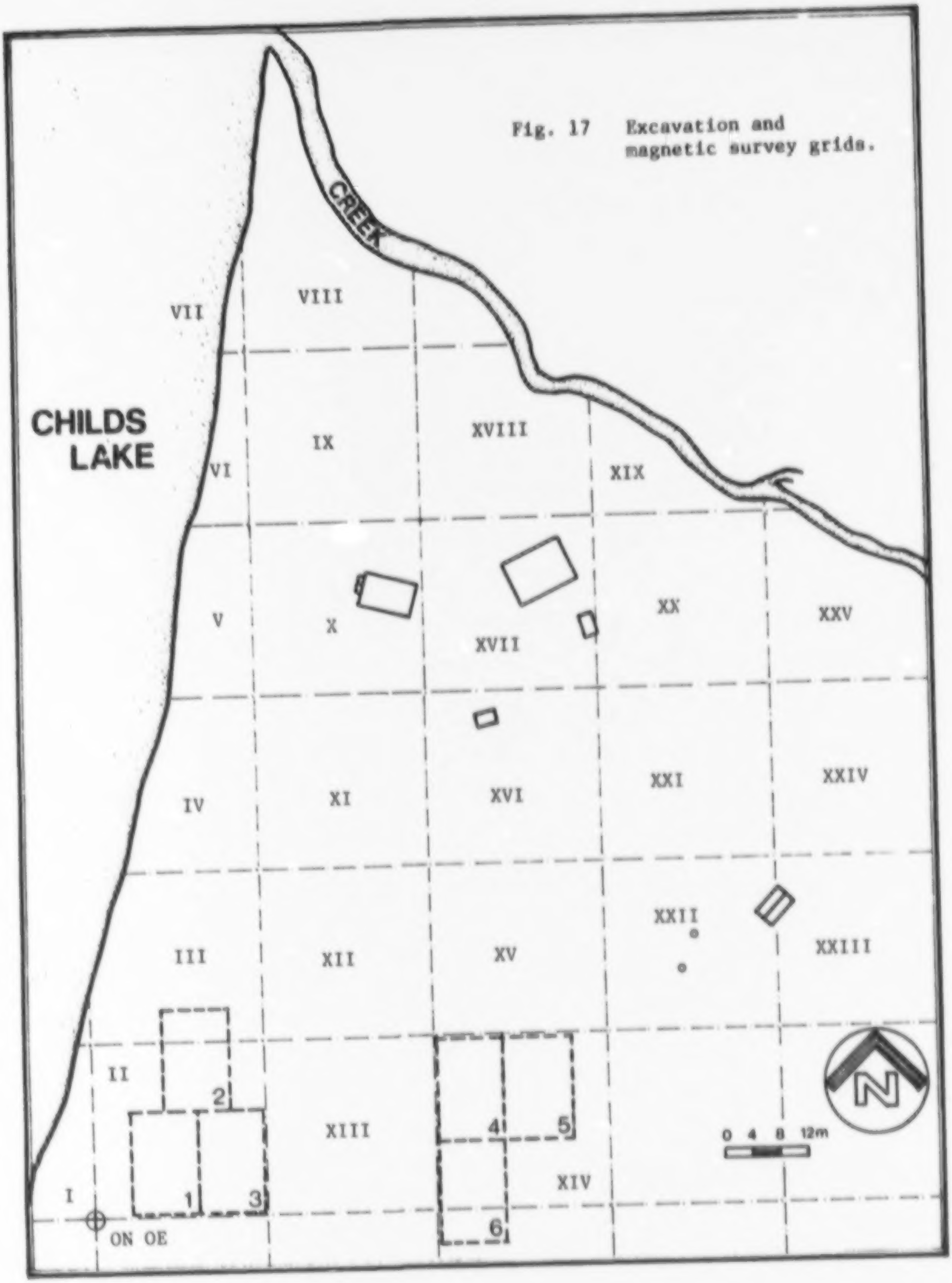


Fig. 17 Excavation and magnetic survey grids.
CREEK
CHILDS LAKE
VII
VIII
VI
IX
XVIII
XIX
V
X
XVII
XX
XXV
IV
XI
XVI
XXI
XXIV
III
XII
XV
XXII
XXIII
II
2
XIII
4
5
I
1
3
XIV
6
ON OE
0 4 8 12m
N

Within each grid rated #1, a 1% sample was chosen using a table of random numbers. A complete grid contained 625 1 x 1 m squares, with a 1% sample considered to be six squares. Grids located along the lakeshore and containing less land surface were sampled proportionately, i.e., four or five squares selected, rather than six.

Magnetic Survey

In mid-June, after four weeks of field work had been completed, an opportunity arose to have a magnetic survey conducted at EjMg-2. Terry Gibson of the University of Alberta spent some time in Manitoba during the summer of 1981 doing magnetic surveys at historic archaeological sites in the southern part of the province. Additionally, he spent several days surveying at EjMg-2, attempting to locate subsurface magnetic anomalies which were assumed to be hearths or possibly concentrations of pottery. The principles underlying magnetic surveying are fairly straightforward.

> The magnetic field of the earth near the earth's surface will be influenced by subsurface features having a different magnetization than that of the surrounding soil. If such a feature is localized it will produce an anomaly in the magnetic field which decreases in strength as the inverse cube of the distance between the feature and the point of measurement. Because of this rapid drop-off in strength, measurements within a meter of the surface will respond to features within 1 or 2 m below the surface, while deeper geological structures will produce broader and perhaps weaker changes in the magnetic field. Thus archaeological features have the potential of being detected in the pattern of magnetic anomalies as revealed by measuring the magnetic field over the area of interest.
>
> The most widely used instrument for measuring magnetic fields on archaeological sites is the proton magnetometer, which has a typical sensitivity of one gamma. In these units the earth's total field in the

> central plains states varies from 5000 to 6000 gamma, while anomalies of archaeological interest vary from several hundred gamma down to the limit of sensitivity.
>
> The strength of an anomaly produced by a subsurface feature depends on the size of the feature and its magnetic susceptibility, that is, the degree of its magnetization as caused by the earth's field. The shape of the anomaly is determined by the size and depth of the source (Weymouth and Nickel 1977: 105-107).

Gibson's operation proved quite impressive. After staking out 10 x 15 m grids and taking readings with the portable proton magnetometer at regular intervals, Gibson fed the results into a small preprogrammed data processor which ran on power generated by an ordinary car battery. Contour maps of the grids were produced on a small plotter running off the same power source. These maps gave broad indications of locales within the grids where "hot spots" had occurred. A close physical examination of the "hot spots" followed, in an attempt to discover some surface explanation for the anomalous readings, e.g., wires, tin cans, nails, etc. On a prehistoric site, of course, these sorts of historic materials are generally considered intrusive and can be ignored. If no ready explanation for the occurrence of the "hot spots" could be found, then these smaller areas were regridded and another map produced on the basis of the new readings.

During Gibson's few days at EjMg-2, he surveyed and analyzed six 10 x 15 m grids (see Figure 17 for location of the magnetic survey grids). Three of these, located in parts of the site where excavations were taking place, were hoped to add information to data already recovered. The remaining three surveys occurred in lower priority areas of the site where excavation was unlikely; presumably they could indicate the presence of prehistoric activities or materials in areas of the site that seemed initially unpromising. Ideally, excavation of "hot spots" identified by the magnetometer should proceed in conjunction with further magnetic survey, as interpretation of the contour maps becomes more refined. Unfortunately, Gibson was not able to remain on site long enough to complete the procedure as thoroughly as he would have preferred, but nonetheless, magnetic survey does seem a technique with potential for quickly locating prehistoric sites or clusters of artifacts or features within a site, particularly those situated in heavily forested areas. Specific results of Gibson's survey are included in the following chapter.

Excavation Methods

Partly in response to the magnetic survey and partly in response to initial excavation results, the original sampling plan was altered somewhat. Occasionally, a unit chosen randomly on paper would contain a large tree or be placed precariously on the edge of the ridge; such units were shifted in position to make their excavation more easily accomplished. Some units were added as extensions of other very productive units, e.g., Units 3N 18E, 3N 19E and 4N 19E, while others were deleted because their location proved to be totally unproductive, e.g., the beach. In total, 60 1 x 1 m units were excavated; two of these, 52N 19E and 1S 19E, were enlarged by 50 cm extensions. Additionally 73 shovel tests were conducted in medium priority grids (Figure 18).

Each 1 x 1 m excavation unit was designated by the coordinates of its southeast datum peg, which measured the distance that peg lay from

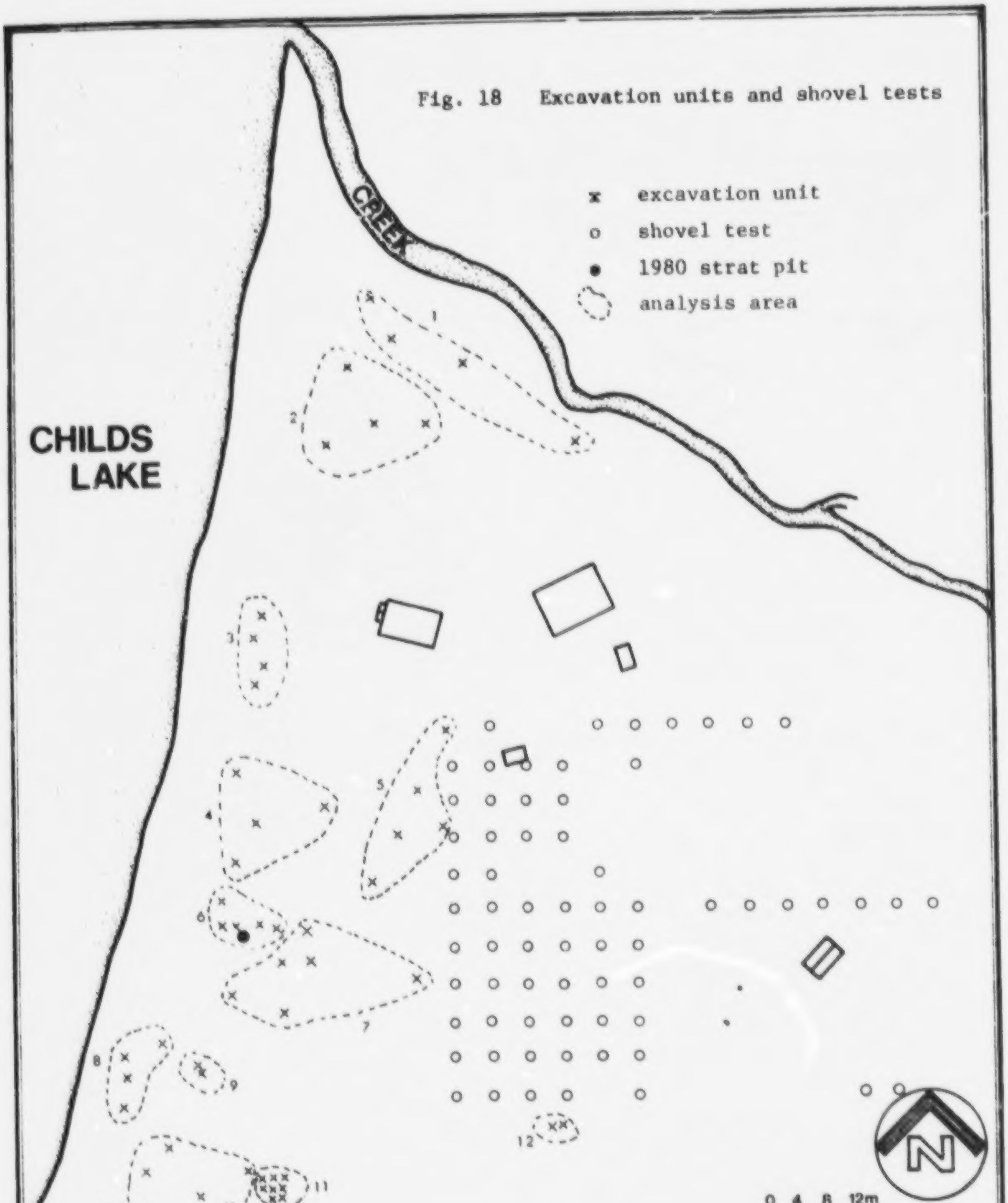


Fig. 18 Excavation units and shovel tests

× excavation unit
○ shovel test
● 1980 strat pit
analysis area
CHILDS LAKE
CREEK
1
2
3
4
5
6
7
8
9
10
11
12
13
0 4 8 12m
N

the site datum, ON OE. The elevation of each unit at its southeast datum peg, in relation to the elevation of the site datum, which had been arbitrarily set at 5 m, was also recorded for use in producing a contour map of the site. Excavation was carried out in arbitrary 2 cm levels, with all material recovered, including bone, measured in and mapped on scattergrams, level by level. Provenience north and west of the unit datum, as well as depth below the surface, were recorded for each item removed from the units.

Ordinarily, trowels were used to excavate, although in the lower levels of some units, sand and gravel were shovelled out. All soil was sifted through .5 cm mesh screens. Materials were removed and bagged by level, with each unit receiving a numerical prefix designation for cataloguing purposes. Each crew member catalogued the artifacts recovered from the units he/she had excavated and, in general, the cataloguing was completed by the end of the field season in all but the most prolific units.

In levels of units that were especially productive or contained hearths, soil samples were collected for flotation screening. This was accomplished by putting the soil sample in a wooden-framed, mesh box and moving it to and fro in the lake. As the soil washed away, any floral material floated to the surface. Recoveries were scooped out and dried on newspapers in a small tent adjacent to the dock. Additionally, any seeds or other vegetable matter recovered during excavation were kept, including pieces of charcoal large enough to be species-identified. No charcoal samples for carbon-14 dating were recovered; charcoal was plentiful in many units near the soil surface and related, no doubt, to the 1885 forest fire. It was impossible to distinguish this charcoal from any that might have pertained to earlier cultural activities.

IV. RESULTS OF EXCAVATION

As excavation proceeded during the summer of 1981, it became apparent that EjMg-2 reflected, not the remains of a large group of people camping for an unspecified length of time, but rather the refuse of many small, perhaps unrelated groups of people, who probably spent no more than one night at the site, if indeed that. Distribution of artifacts supports this interpretation, as the site is dotted with small clusters of materials that are usually confined to only one unit, or even a portion of one unit. In order to confirm this interpretation, it is necessary to look closely at recoveries from the excavation units. Rather than doing this on an individual basis, however, units have been grouped together into "areas" for analysis. The major factor involved in grouping particular units together is physical proximity, although some areas do have micro-environmental integrity, e.g., the beach.

Not unexpectedly, lithic materials comprise the bulk of recoveries from EjMg-2. A recent interest in the analysis of lithic debris as a means of inferring past activities (e.g., Collins 1975 and, locally, Magne and Shay 1978) shows promise for sites like EjMg-2, where previous interpretations were based primarily on the types of tools recovered. In his M.A. thesis at the University of Manitoba (1978), Magne analyzed the lithic assemblages from four Archaic sites in west-central Manitoba, elaborating on Collins' Product Groups (1975: 19-23) to fit the local situation. Magne's work has provided a basis for the classification of lithic debris recovered at Childs Lake, although specific classifications and interpretations are, obviously, the responsibility of the author.

Although the distribution of cultural materials seemed generally without pattern throughout the site, occasional clusters or aggregates of artifacts, sometimes associated with ash and charcoal and/or bone, indicated the presence of more than random distribution. In one sense, these clusters of artifacts could probably be considered features.

> The word "feature" is ordinarily used to denote those material and visible items in or about archaeological sites that are either atypical of the general run of the deposit or not frequently encountered on the surface or in the vicinity of an aboriginal inhabitation. Generally speaking, features are things that are not brought back to the laboratory or museum. Thus ash lenses, house floors, caches of unworked stones, earth ovens, storage pits, and the like are generally called features. ... Groups of things such as a cache of charmstones, flaked blades, net-sinkers, raw implement material chunks found together, or an animal burial in a site may also be called features (Hester, et al. 1975: 131).

The term "activity centre" has been chosen for these aggregations, however. In most occurrences at the site, it was possible to infer the types of human activities carried on in association with the artifactual remains and, after all, it is the prehistoric occupants of Childs Lake and their activities that are of main interest here.

Area 1

Area 1 is located on the alluvial flat adjacent to the south side of the creek draining Hickey Lake and north of the path leading down to the dock; it falls within Grids VIII and XVIII (Figure 17). Interest in this portion of the site centred upon its proximity to the creek mouth. Suckers (*Catostomus commersoni*) were observed swarming there late in May and this part of the site could have been utilized for concentrated exploitation of fish.

Four units were excavated in Area 1: 113N 68E, 116N 58E, 124N 53E and 128N 43E. Artifacts were nearly non-existent, with only a water-worn core fragment recovered from 113N 68E and a single flake from 116N 53E (Figures 18 and 19). The remaining two units contained only a few pieces of fish bone each. Additionally, the mid-section of a large mammal rib also appeared in 128N 43E. Articular facets were missing, preventing further identification. The fragment is elk-sized, however, which is not inconsistent with the accepted range for elk in the Park.

Area 2

Area 2 lies at the northern, sloping end of the ridge, where access to the beach is quite easy. It was bisected by the path leading to the dock and although none of the four units within the area was directly on the path, minimal surface disturbance was expected. Flakes were readily observed eroding from the soil on this portion of the path and in 1980, when visiting the site with Carmichael, the author picked up a uniface nearby. Four units, all within Grid IX, were excavated in Area 2: 113N 34E, 116N 41E, 116N 48E and 124N 37E (Figures 17 and 18).

Only lithic artifacts were recovered from Area 2 (Figure 20). Unit 113N 34E contained a fragment of a rough biface made of quartz, while Unit 116N 41E held a finely worked biface, as well as a utilized flake, both made of the same Swan River Chert (Plate 4). In each unit, most recoveries consisted of flakes classified as Product Group II,

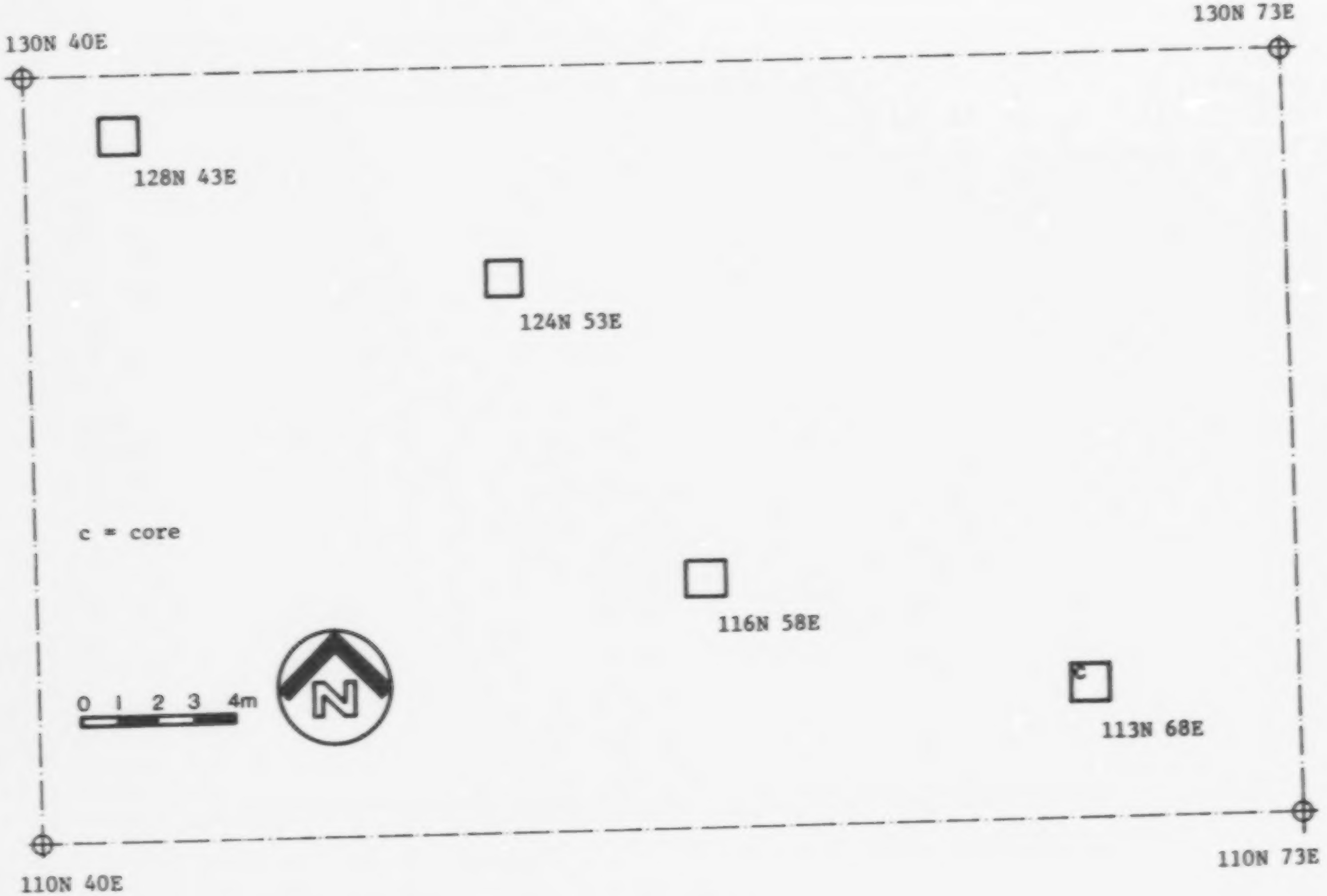

130N 40E
130N 73E
128N 43E
124N 53E
c = core
116N 58E
c
0 1 2 3 4m
N
113N 68E
110N 40E
110N 73E

Fig. 19 Artifact distribution in Area 1.

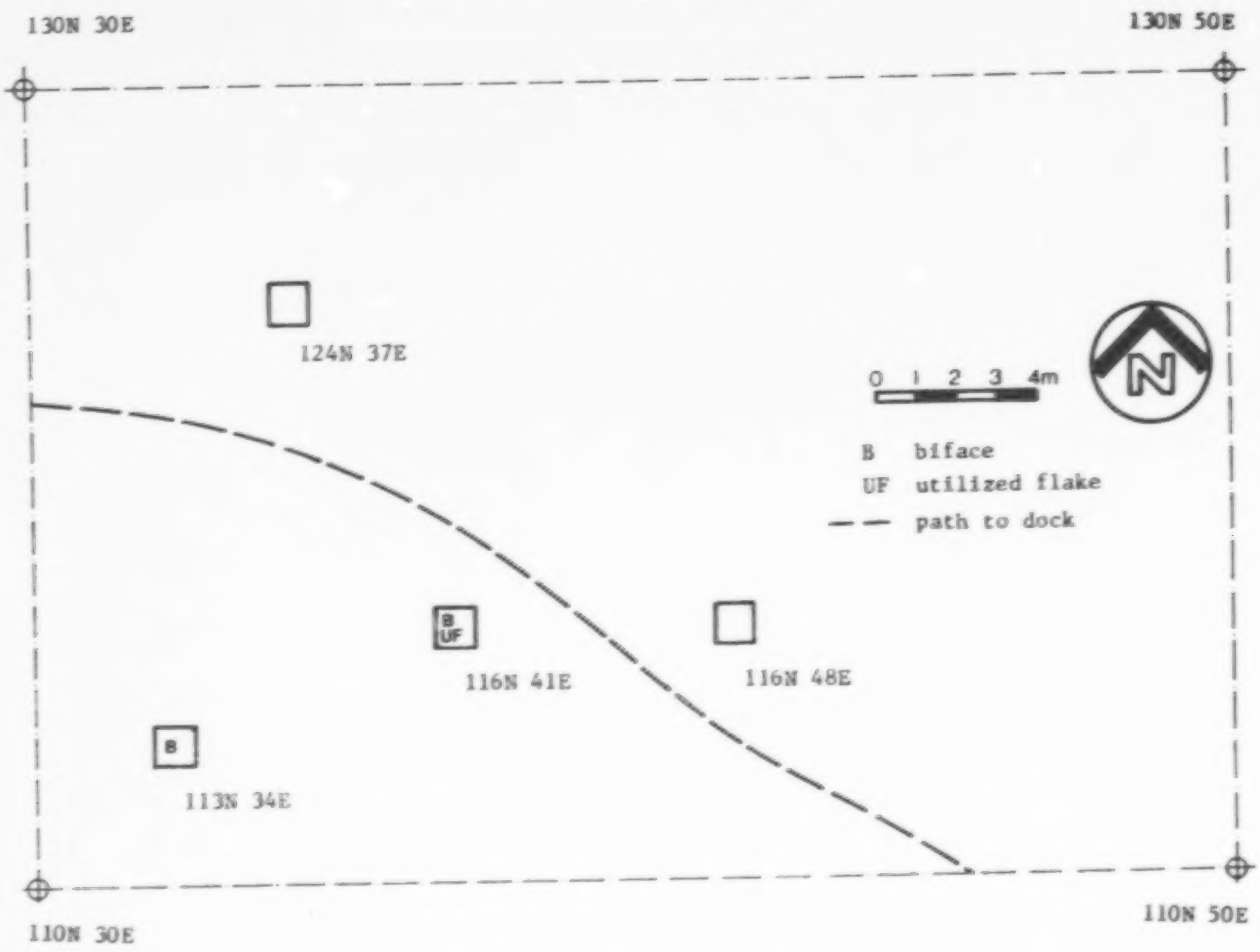

130N 30E
130N 50E
124N 37E
0 1 2 3 4m
N
B biface
UF utilized flake
path to dock
B
UF
116N 41E
116N 48E
B
113N 34E
110N 30E
110N 50E

Fig. 20 Artifact distribution in Area 2.

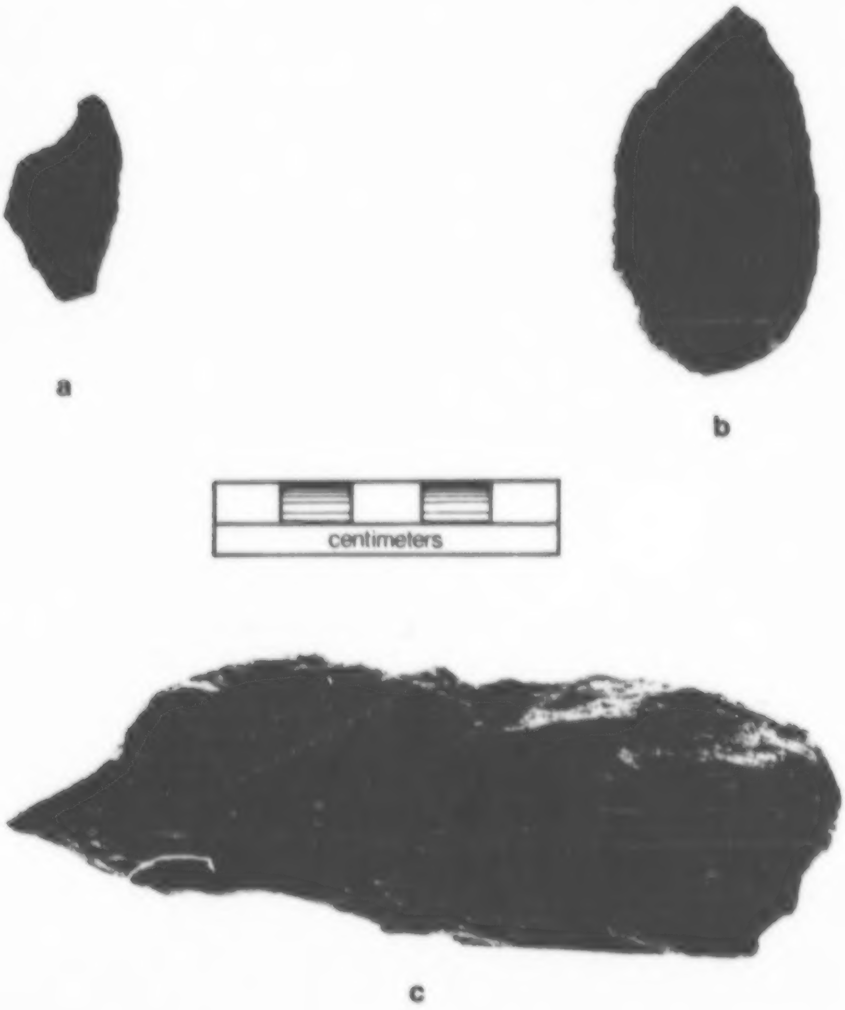

a
b
centimeters
c

PLATE 4 Lithic tools from Area 2.

Unit 116N 41E a) Utilized flake 33-30
b) Biface 33-22

Unit 113N 34E c) Biface 31-39

Core Preparation and Initial Reduction (Magne 1978: 49). Only thirteen of 232 flakes were classified in other product groups -- four from Group III, Primary Trimming, and nine from Group IV, Secondary Trimming (see Table 5). Noteworthy among the six bifacial reduction flakes are four specimens made of Knife River Flint and found in Unit 116N 41E (see Table 6 for distribution of lithic raw materials among the debris classes).

TABLE 5

Classification of Lithic Debris from Area 2

DEBRIS CLASS[1]	113N 34E	116N 41E	116N 48E	124N 37E
Product Group II				
IPF with Cortex[2]	5	5	0	6
IPF without Cortex	23	2	11	16
CPF with Cortex[3]	1	0	0	0
CPF without Cortex	0	0	0	1
SF with Cortex[4]	6	1	4	1
SF without Cortex	18	4	27	42
SB with Cortex[5]	3	6	1	0
SB without Cortex	5	3	10	18
Product Group III				
CoPF with Cortex[6]	1	2	0	0
CoPF without Cortex	0	0	0	1
Product Group IV				
Uniface Reduction Flake	0	1	1	0
Biface Reduction Flake	1	4	1	0
Lipped Flake with Cortex	1	0	0	0
TOTALS	64	28	55	85

[1] Adapted from Magne 1978, the following abbreviations for debris classes will be used throughout the classification tables.

[2] Intact Platform Flake with Cortex.

[3] Crushed Platform Flake with Cortex.

[4] Shatter Flake with Cortex.

[5] Shatter Block with Cortex.

[6] Concave Platform Flake with Cortex.

TABLE 6

Distribution of Lithic Raw Materials in Area 2

UNIT	CHERT[1]	KNIFE RIVER FLINT	QUARTZITE	SWAN RIVER CHERT	TOTALS
113N 34E					
Tools	0	0	1	0	1
PG II	3	0	2	56	61
PG III	0	0	0	1	1
PG IV	0	0	0	2	2
116N 41E					
Tools	0	0	0	2	2
PG II	0	0	0	21	21
PG III	2	0	0	0	2
PG IV	0	4	0	1	5
116N 48E					
Tools	0	0	0	0	0
PG II	1	0	2	50	53
PG III	0	0	0	0	0
PG IV	0	0	0	2	2
124N 37E					
Tools	0	0	0	0	0
PG II	4	0	0	80	84
PG III	0	0	0	1	1
PG IV	0	0	0	0	0
TOTAL	10	4	5	216	235

[1] With the exception of Swan River Chert, this category includes all other cherts recognized at the site, e.g. Selkirk, Cat-Head, but found in small quantities.

Activity Centre A

Within Unit 116N 41E, the biface and utilized flake made of the same Swan River Chert were found associated with a small hearth. The biface lay just on top of the charcoal and ash mixture at a depth of 18 cm DBS, while the utilized flake was recovered 5 cm lower at 23 cm DBS.

The foot path to the dock skirts the eastern edge of 116N 41E and traffic along the path has worn the LFH horizon completely away, which accounts for the presence of flakes on the soil surface, as well as the soft drink bottle cap found there. Because of this disturbance, it is difficult to judge if the four Knife River Flint bifacial reduction flakes are connected with the hearth and two tools. Three of the flakes were surface finds, while the fourth was located above the main hearth at 15 cm DBS, but at the base of a smaller, stratigraphically higher area of charcoal and ash that may or may not be related to the main hearth.

No bone was recovered from this unit or any other unit in Area 2. Generally, faunal recoveries at the site were quite minimal, despite a neutral to slightly acid pH level for the soil, which would not hinder bone preservation. It seems logical to assume that the scarcity of bone, as well as the scanty lithic recoveries, indicate a brief utilization of this portion of the site rather than an extended camping situation. In the instance of Activity Centre A, perhaps the artifacts represent the remains of a short stay by only one, or at the most a few persons, who built a fire there to cook a meal or for warmth. Figure 21 illustrates the south wall profile of Unit 116N 41E, with its hearth and associated tools.

Area 3

All of the units contained in Area 3, 81N 24E, 83N 25E, 87N 24E, and 90N 25E, fell within Grid V. They stretched along the crest of the ridge, lying quite near the edge of its sharp 3-meter drop-off (Figures

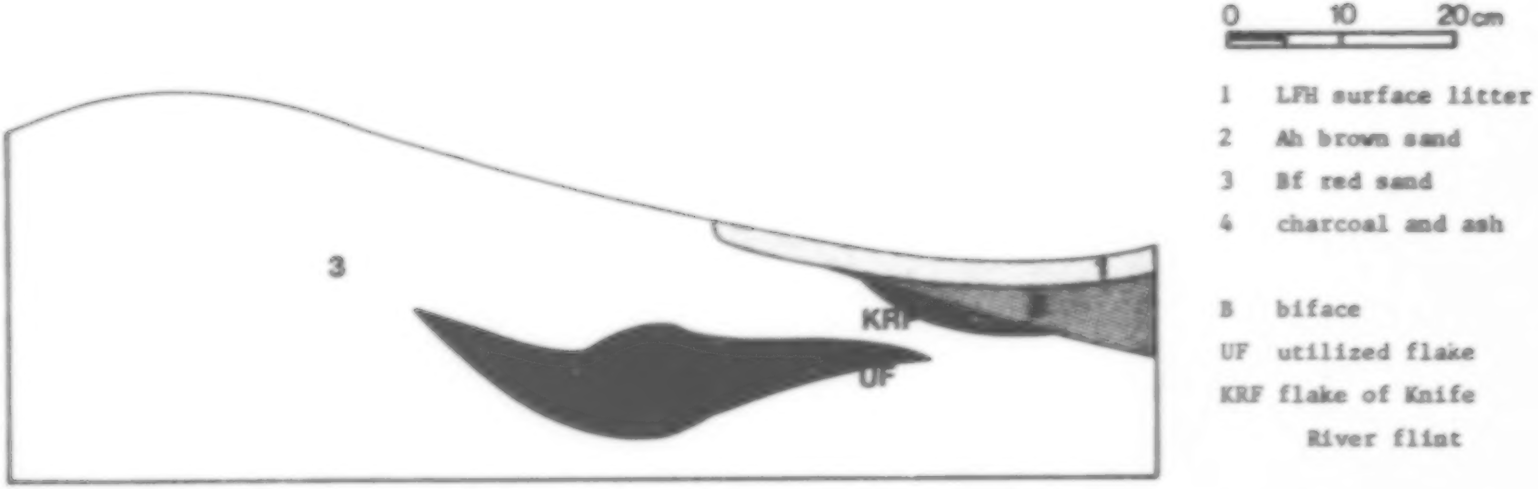

0
10
20cm
3
KRF
UF
1
1 LFH surface litter
2 Ah brown sand
3 Bf red sand
4 charcoal and ash
B biface
UF utilized flake
KRF flake of Knife River flint

Fig. 21 Activity Centre A in Unit 116N 41E.

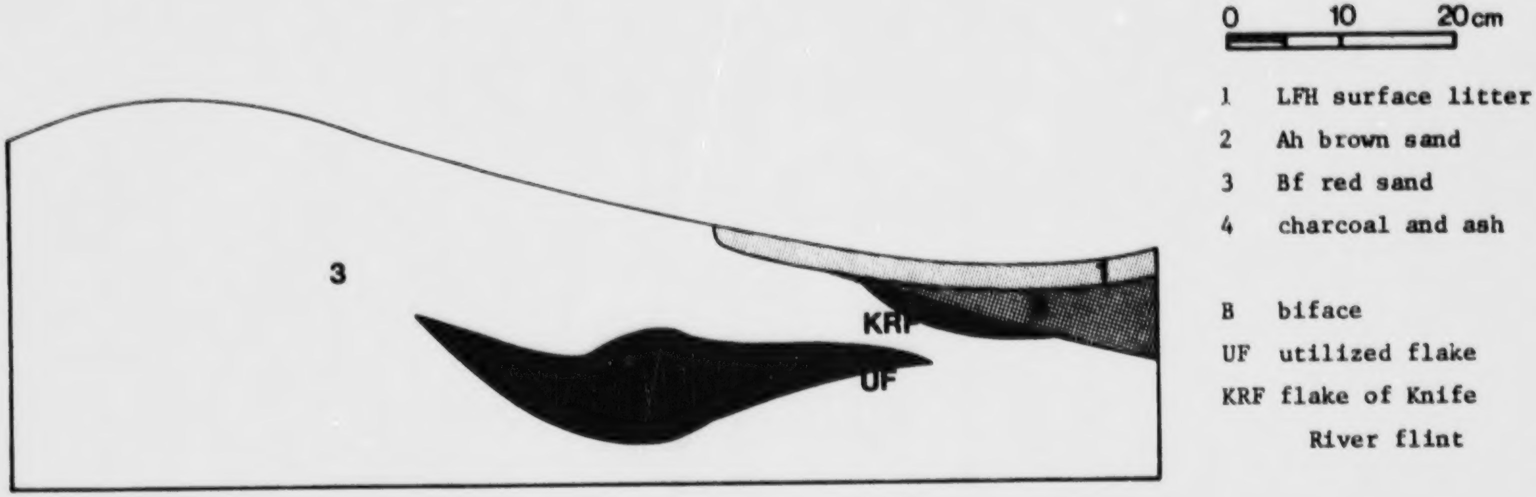

0
10
20cm
1 LFH surface litter
2 Ah brown sand
3 Bf red sand
4 charcoal and ash
B biface
UF utilized flake
KRF flake of Knife River flint
3
KRF
UF

Fig. 21 Activity Centre A in Unit 116N 41E.

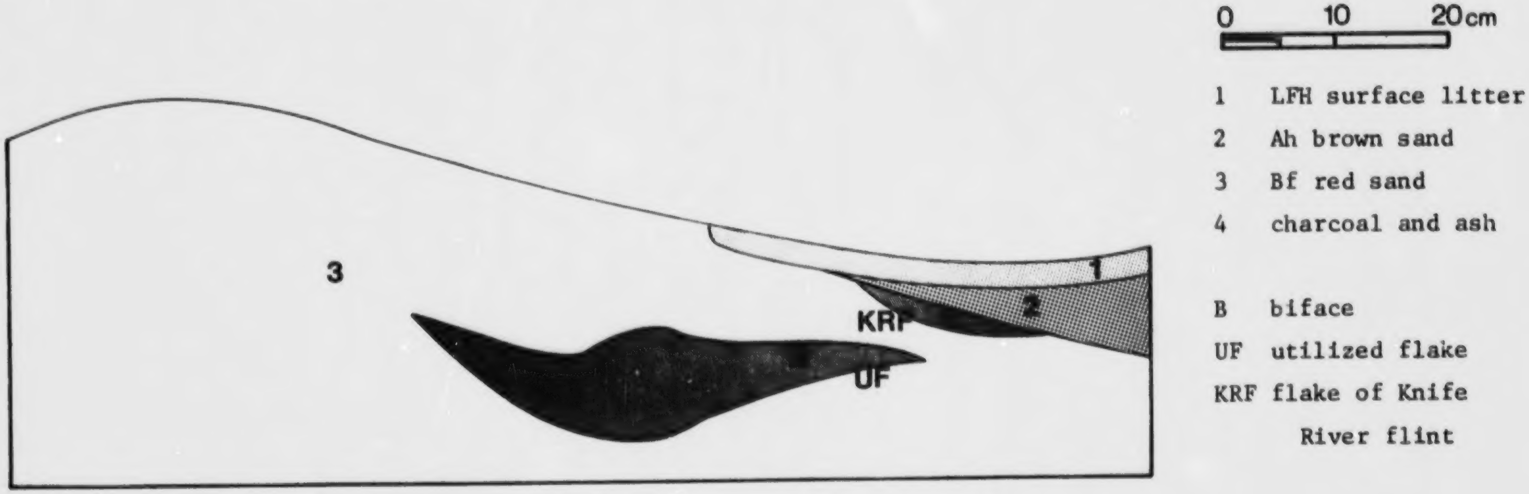

0
10
20cm
1 LFH surface litter
2 Ah brown sand
3 Bf red sand
4 charcoal and ash
B biface
UF utilized flake
KRF flake of Knife River flint
1
2
3
KRF
UF

Fig. 21 Activity Centre A in Unit 116N 41E.

17 and 18). Although immediately south of the fire-pit and picnic tables, the units were located in a relatively undisturbed portion of the site. These units were of special interest because the central area surrounding and adjacent to the cabin was littered with surface lithic debris. The crew pruposefully left all such materials on the ground and in early June, when the Dauphin Chapter of the Manitoba Archaeological Society visited EjMg-2, interested members graciously surface-collected throughout this part of the site. Literally hundreds of flakes were recovered from the surface. It was hoped that the four units in Area 3 would give a representative sample of the remains in this part of the site prior to its disturbance by Parks activities.

However, the units in this area held no surprises (Figure 22). Only one, 90N 25E, contained tools: a utilized flake and a core, both made of Swan River Chert (Plate 5). Unit 83N 25E contained fragments of the mandible of a small mammal and 87N 24E one other small bone fragment, but other than these, there were no faunal remains. As expected, most cultural material consisted of lithic debris classified as Product Group II, Core Reduction and Optional Trimming. Only in 90N 25E was there a significant amount of Secondary Trimming Debris, Product Group IV (Table 7). As before, the main raw material utilized was the readily available Swan River Chert; only one flake of Knife River Flint was recovered, a bifacial reduction flake from Unit 90N 25E (Table 8).

Area 4

The four units comprising Area 4, 57N 21E, 62N 24E, 64N 33E and 69N 21E, lay within two Grids, IV and XI. Located south of the

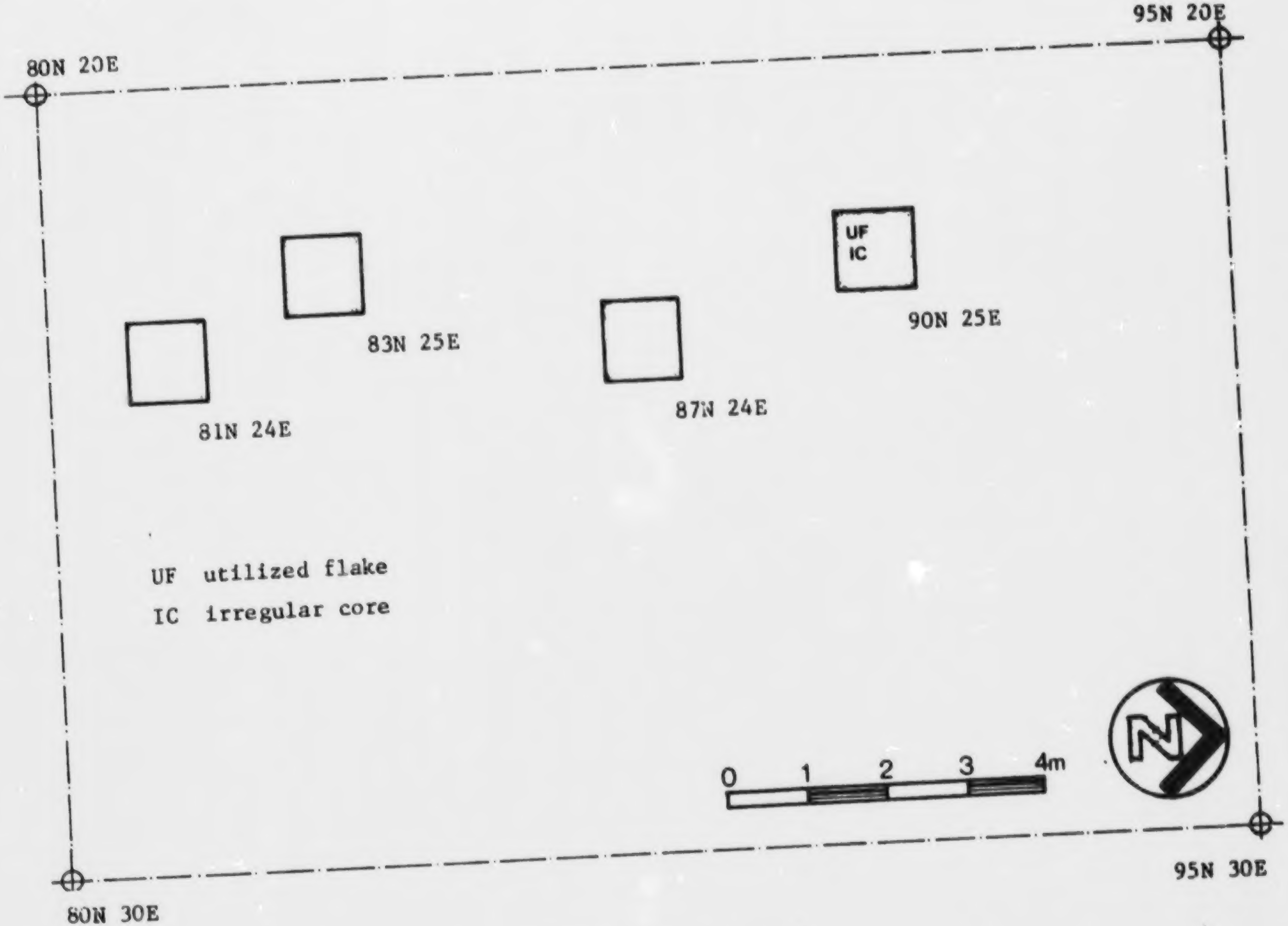

80N 20E
95N 20E
UF
IC
83N 25E
81N 24E
87N 24E
90N 25E
UF utilized flake
IC irregular core
0
1
2
3
4m
N
80N 30E
95N 30E

Fig. 22 Artifact distribution in Area 3.

a
b
centimeters

PLATE 5 Lithic tools from Area 3.

Unit 90N 25E a) core 25-68
b) utilized flake 25-44

cabin and its obviously disturbed surroundings, they were at the fringe of the forested portion of the site and presumably less affected by human activities. The foot path leading south to the cottage lots angled from the northeast to the southwest across the eastern edge of the area. Unit 64N 33E was positioned to the east of the path, while the remaining three were west of the path between it and the edge of the ridge with its steep drop-off (Figures 17 and 18).

TABLE 7

Classification of Lithic Debris from Area 3

DEBRIS CLASS	81N 25E	83N 24E	87N 24E	90N 25E
Product Group II				
IPF with Cortex	1	1	6	7
IPF without Cortex	16	20	3	31
CPF without Cortex	1	0	0	0
SF with Cortex	0	2	1	6
SF without Cortex	13	9	3	24
SB with Cortex	8	2	2	4
SB without Cortex	6	8	3	9
Product Group III				
CoPF without Cortex	2	0	0	0
Product Group IV				
Uniface Reduction Flake	0	1	0	5
Biface Reduction Flake	0	1	0	9
TOTALS	47	44	18	95

Unit 57N 21E did not produce much of anything; only seven Product Group II flakes were recovered and there was no bone present. Each of the other units, however, contained tools as well as lithic debris. Cores were found in both 62N 24E and 64N 33E. Additionally, a large side-notched projectile point associated with a spirally

TABLE 8

Distribution of Lithic Raw Materials in Area 3

UNIT	CHERT	GRANITE	KNIFE RIVER FLINT	SWAN RIVER CHERT	TOTALS
81N 24E					
Tools	0	0	0	0	0
PG II	1	0	0	44	45
PG III	0	0	0	2	2
PG IV	0	0	0	0	0
83N 25E					
Tools	0	0	0	0	0
PG II	1	0	0	41	42
PG III	0	0	0	0	0
PG IV	0	0	0	2	2
87N 24E					
Tools	0	0	0	0	0
PG II	2	0	0	16	18
PG III	0	0	0	0	0
PG IV	0	0	0	0	0
90N 25E					
Tools	0	0	0	2	2
PG II	1	1	0	79	81
PG III	0	0	0	0	0
PG IV	0	0	1	13	14
TOTALS	5	1	1	199	206

fractured large mammal long bone fragment was retrieved from 64N 33E. Finally, Unit 69N 21E contained two biface fragments. All of these tools were fashioned from Swan River Chert (Figure 23; Plate 6).

Despite the increased recovery of diagnostic lithics in Area 4, little could be determined about them other than their presence on the site. Units 62N 24E and 64N 33E both contained tree-throws. As such, their soil matrices were hopelessly jumbled and none of the materials recovered from these units could be considered contextually secure. Of

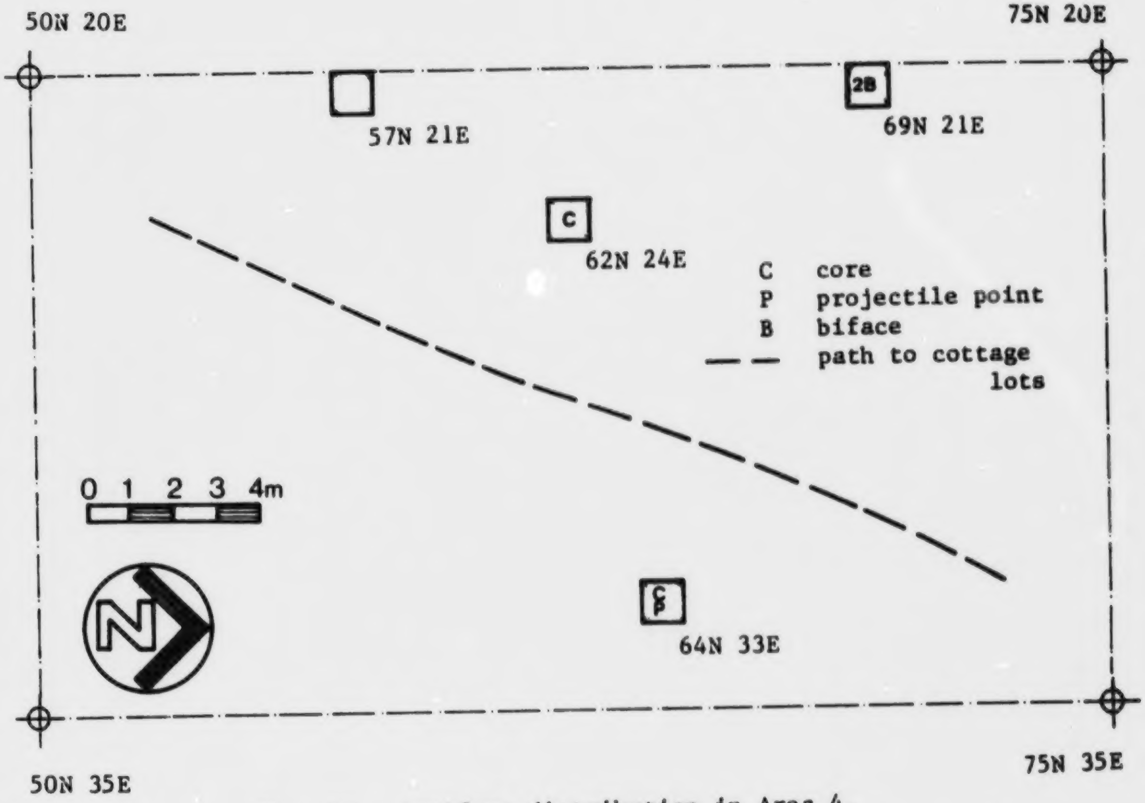

50N 20E
75N 20E
2B
69N 21E
57N 21E
C
62N 24E
C core
P projectile point
B biface
path to cottage lots
0 1 2 3 4m
N
C P
64N 33E
50N 35E
75N 35E

Fig. 23 Artifact distribution in Area 4.

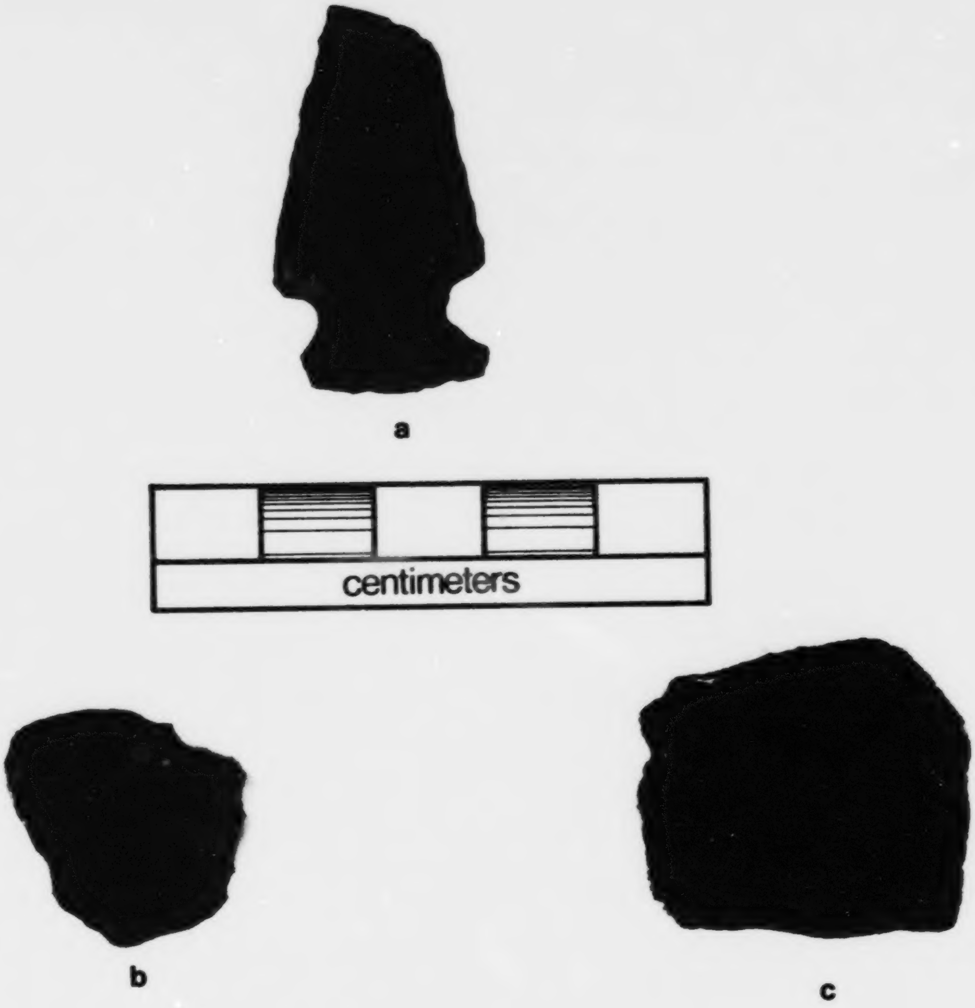

a
centimeters
b
c

PLATE 6 Lithic tools from Area 4

Unit 64N 33E a) side-notched projectile point 43-4

Unit 69N 21E b, c) biface fragments 21-7, 21-1 course 69N 21E, which did not appear disturbed at all, yielded only seven flakes in addition to the two biface fragments. Again, lithic debris from Area 4 was primarily Product Group II recoveries (Table 9), while Swan River Chert was the main raw material utilized (Table 10).

TABLE 9

Classification of Lithic Debris from Area 4

DEBRIS CLASS	57N 21E	62N 24E	64N 33E	69N 21E
Product Group II				
IPF with Cortex	1	7	1	0
IPF without Cortex	2	11	0	4
SF with Cortex	1	6	0	0
SF without Cortex	0	6	0	3
SB with Cortex	0	6	0	0
SB without Cortex	3	5	1	0
Product Group IV				
Biface Reduction Flake	0	2	0	0
Lipped Flake without Cortex	0	1	0	0
TOTALS	7	44	2	7

Area 5

In general, Area 5 lay immediately to the east of Area 4, with its five units contained in Grid XI. The two northern-most units, 66N 46E and 74N 50E, were in a fairly open situation. 74N 50E, especially, fell within the cleared area surrounding the cabin and was subjected to a fair amount of foot traffic; both units were likely to be disturbed. The remaining three units, 54N 39E, 60N 43E and 61N 49E lay well inside the woods separating the Parks facilities from the most northerly of the cottage lots. These three units were not likely to have been affected by casual human activities, as they were positioned 10 - 15 m

TABLE 10

Distribution of Lithic Raw Materials in Area 4

UNIT	CHERT	QUARTZITE	SWAN RIVER CHERT	TOTALS
57N 21E				
Tools	0	0	0	0
PG II	1	0	6	7
PG IV	0	0	0	0
62N 24E				
Tools	0	0	1	1
PG II	0	3	38	41
PG IV	0	0	3	3
64N 33E				
Tools	0	0	2	2
PG II	0	0	2	2
PG IV	0	0	0	0
69N 21E				
Tools	0	0	2	2
PG II	0	1	6	7
PG IV	0	0	0	0
TOTALS	1	4	60	65

east of the foot path running south to the cottage lots (Figures 17 and 18).

Two of the units in Area 5, 54N 39E and 66N 46E, contained nothing other than a few flakes, 31 and 7 respectively. The rest of the units, however, contained diagnostic items as well as flakes (Figure 24). Although 60N 43E held a utilized flake and a uniface fragment, little else can be said about it. In contrast to other units containing the mounded and compacted roots-soil-gravel matrices of tree-throws, 60N 43E was found in a locally depressed area from which tree roots had been pulled. Unit 61N 49E also suffered

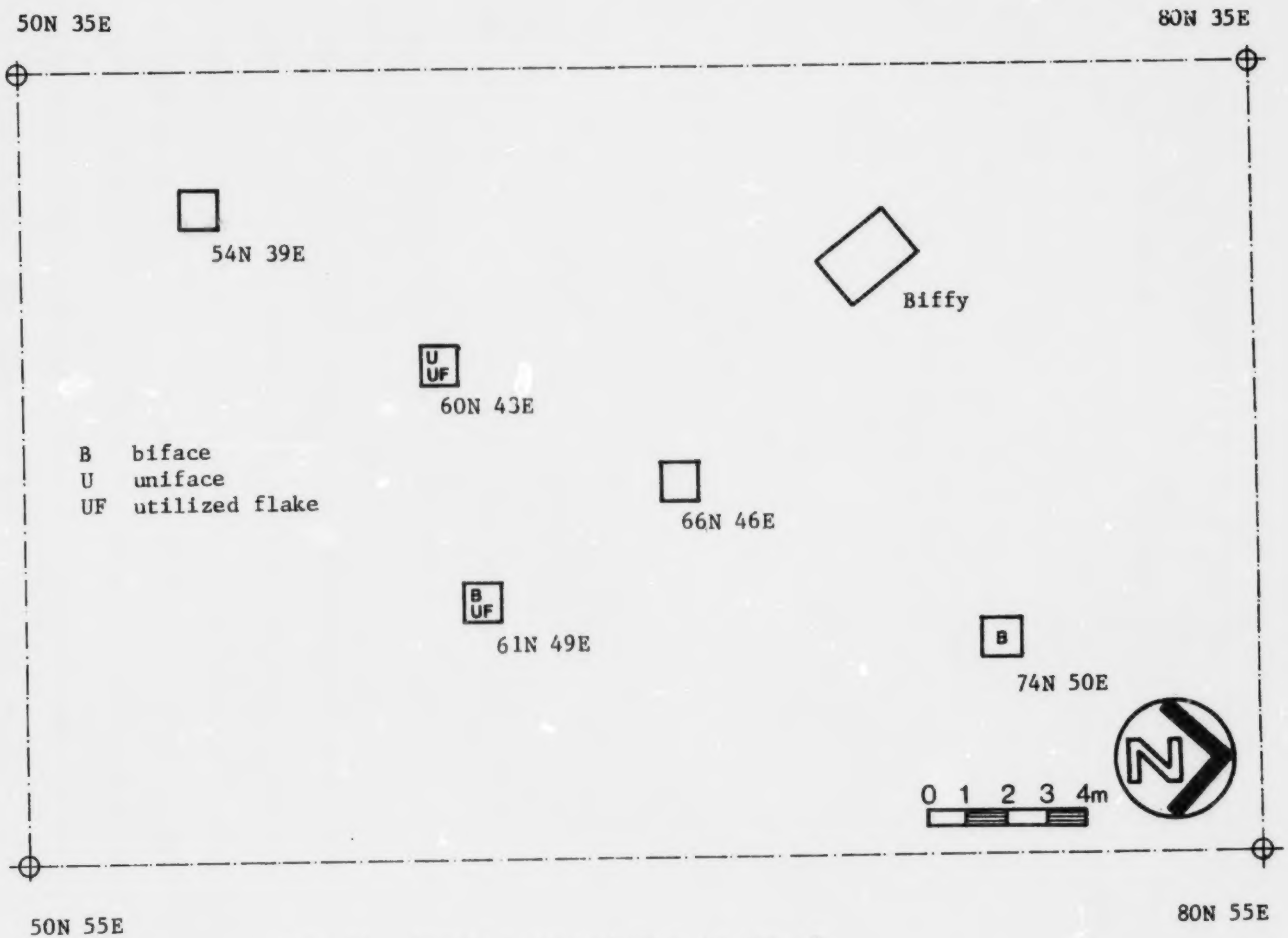

50N 35E
80N 35E
54N 39E
Biffy
U
UF
60N 43E
B biface
U uniface
UF utilized flake
66N 46E
B
UF
61N 49E
B
74N 50E
N
0 1 2 3 4m
50N 55E
80N 55E

Fig. 24 Artifact distribution in Area 5.

disturbance, but in this instance it was possible to delineate the nature and extent. Beneath the LFH horizon of the soil profile was revealed a zone of disturbed soil, ranging between 7 - 25 cm in depth, which contained historic debris (bottle cap, beer bottle fragments, and spiced beef tin). Underneath this obviously disturbed zone, however, were in situ prehistoric remains -- a utilized flake and biface, as well as 151 flakes, mostly classified as Product Group II specimens.

The final unit in Area 5, 74N 50E, contained a biface and several flakes (see Plate 7 for the tools recovered in Area 5). Small charcoal lenses appeared on the north, south and west wall profiles, but no lithic materials seemed particularly associated with them. Likely the charcoal relates to the 1885 fire or even later. No bone was found in this unit, or any other unit located in Area 5. As expected, most lithic debris was classified as belonging to the core reduction or optional trimming stages of tool manufacture (Table 11) and Swan River Chert was the most commonly utilized raw material (Table 12).

Activity Centre B

Despite the surficial deposit of disturbed soil and historic materials, Unit 61N 49E contained a buried soil horizon that had obviously been a former soil surface (see Figure 25, the black sand Ah horizon beneath the overburden). At the base of this horizon and scattered within the grey sand of the Ae horizon throughout the entire unit were some 151 pieces of lithic debris, as well as the utilized

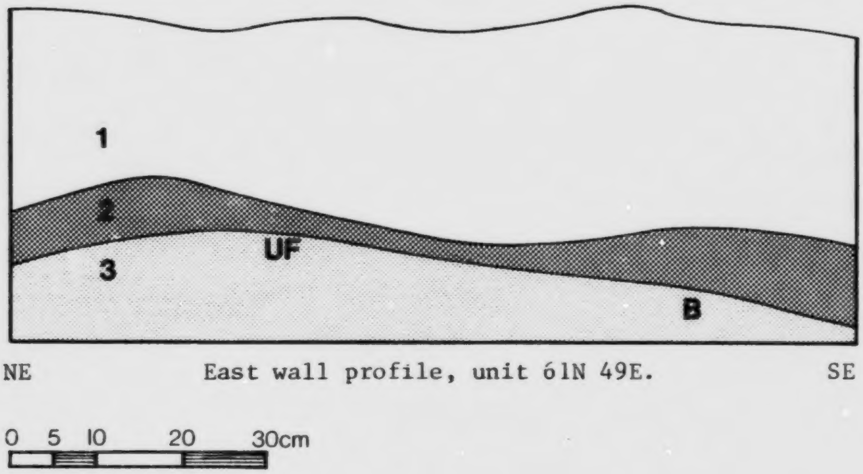
a
b
c
centimeters
d
e

PLATE 7 Lithic tools from Area 5

Unit 60N 43E a) utilized flake 47-7
c) uniface 47-10

Unit 61N 49E b) utilized flake 44-40
e) biface 44-159

Unit 74N 50E d) biface 45-8


1
2
UF
3
B
NE
SE
0 5 10 20 30cm

East wall profile, unit 61N 49E.

1 overburden of disturbed soil
2 Ah black sand
3 Ae grey sand (primary zone of deposition)

B biface
UF utilized flake

Fig. 25 Activity Centre B.

TABLE 11

Classification of Lithic Debris from Area 5

DEBRIS CLASS	54N 39E	60N 43E	61N 49E	66N 46E	74N 50E
Product Group II					
IPF with Cortex	1	2	18	0	0
IPF without Cortex	11	4	29	3	2
SF with Cortex	2	0	13	0	1
SF without Cortex	8	1	24	0	1
SB with Cortex	2	0	23	4	7
SB without Cortex	4	1	26	0	1
Product Group IV					
Uniface Reduction Flake	0	0	12	0	1
Biface Reduction Flake	3	1	5	0	1
Lipped Flake without Cortex	0	1	1	0	0
TOTALS	31	10	151	7	14

TABLE 12

Distribution of Lithic Raw Materials in Area 5

UNIT	CHERT	QUARTZITE	SWAN RIVER CHERT	TOTALS
54N 39E				
Tools	0	0	0	0
PG II	0	0	28	28
PG IV	0	0	3	3
60N 43E				
Tools	0	0	2	2
PG II	0	0	8	8
PG IV	0	0	2	2
61N 49L				
Tools	0	0	2	2
PG II	0	1	132	133
PG IV	0	0	18	18
66N 46E				
Tools	0	0	0	0
PG II	2	0	5	7
PG IV	0	0	0	0
74N 50E				
Tools	0	0	1	1
PG II	0	0	12	12
PG IV	0	0	2	2
TOTALS	2	1	215	218

flake and biface. In the upper levels of the unit, a few flakes were found associated with historic materials in the Ah horizon, but historic goods were not present in the grey sand which contained 143 of the 151 flakes. The first two flakes appeared on Level V at a depth of 19 - 21 cm DBS, with the majority clustered on Levels VI and VIII. The biface was the last artifact to be recovered from 61N 49E at a depth of 32 cm DBS; it lay near the base of the Ae horizon as it gave way to an underlying sandy grey clay (Bt horizon).

Scattergrams of the excavation levels involved do not indicate any particular patterned distribution of flakes. Again, most of the debris can be classified in the second stage of tool manufacture, where cores are reduced to obtain suitable flakes for tool production. As there was no bone or evidence of fire in this unit either, it seems likely that the remains point to only a short stay at this locale by, at the most, a small group of people.

Area 6

The five units contained in Area 6 fall within Grids III, IV and XII. With only a few exceptions, this portion of the site, which is also the crest of the ridge behind the beach, is very flat. The path running to the cottage lots cuts through the area, trending from northeast to southwest. Two units, 48N 24E and 47.5N 26E, lie east of the path, while the remaining three, 48N 19E, 48N 21E and 52N 19E, are west of it. In addition, the strat pit dug by Carmichael and Zywina in 1980 also falls within Area 6. The pit approximated a 50 cm square and, although not tied into a surveying system at the time, it fitted nicely into the one established in 1981. The outline of the pit was readily seen and its southeast corner measured in at 47N 21.5E (Figures 17 and 18).

On paper, this part of the site seemed quite promising. In 1980, the strat pit had produced a projectile point, a biface and a utilized flake; the terrain was relatively flat; and except for the footpath, the area looked undisturbed. Expectations were indeed rewarded, for two of the units contained fragments of pottery vessels, the second occurrence of Native-manufactured pottery in all of Duck Mountain (Figure 26). In 52N 19E, excavated by the author, 23 bodysherds from a Terminal Woodland fabric impressed vessel were recovered. Three-fourths of the pottery was found along or embedded in the west wall of the unit; therefore, a 50 cm extension was added in the hope of gaining pieces of the vessel. As it turned out, more sherds were found, and 21 of the 23 have been reconstructed (Plate 8).

Furthermore, in Unit 47.5N 26E the rimsherd of another pottery vessel was recovered (Plate 9). Although only a single sherd, there was much to be learned from it. It appears to be a representative of the distinctive type called "Duck Bay Notched Lip" (Badertscher: In Press), which has been found in quantity at FbMb-1, the Aschkibokahn Site, located on an island north and west of Duck Bay, Manitoba, on the western shore of Lake Winnipegosis. This island is strategically positioned at the confluence of the Duck and Drake Rivers with Lake Winnipegosis. About six miles west of this estuary, the Duck River receives the Sclater River before flowing into the marshy bay. Both

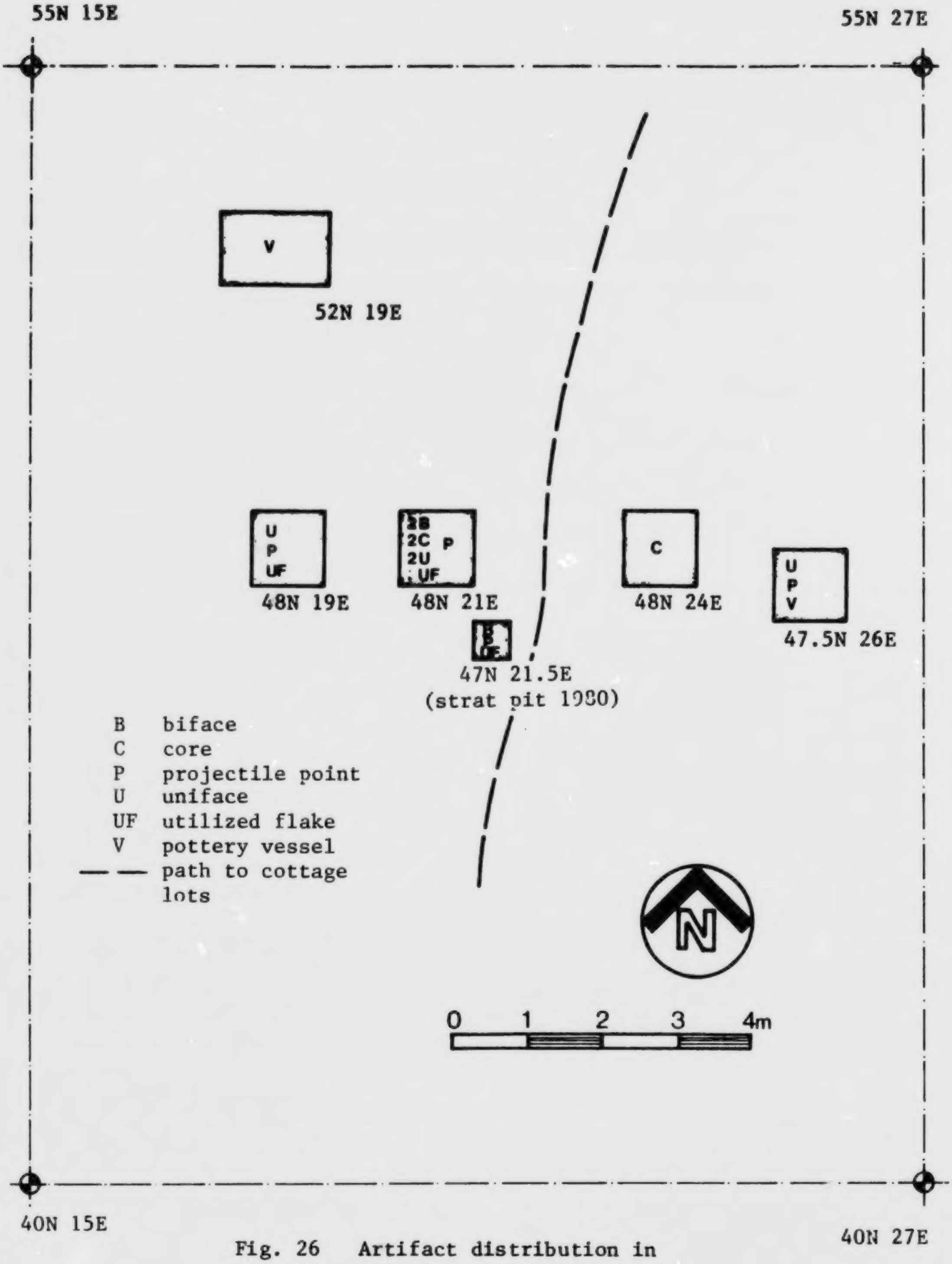

55N 15E
55N 27E
V
52N 19E
U
P
UF
48N 19E
2B
2C
2U
UF
P
48N 21E
C
48N 24E
U
P
V
47.5N 26E
B
UF
47N 21.5E
(strat pit 1980)
B biface
C core
P projectile point
U uniface
UF utilized flake
V pottery vessel
path to cottage lots
N
0
1
2
3
4m
40N 15E
40N 27E

Fig. 26 Artifact distribution in Area 6.

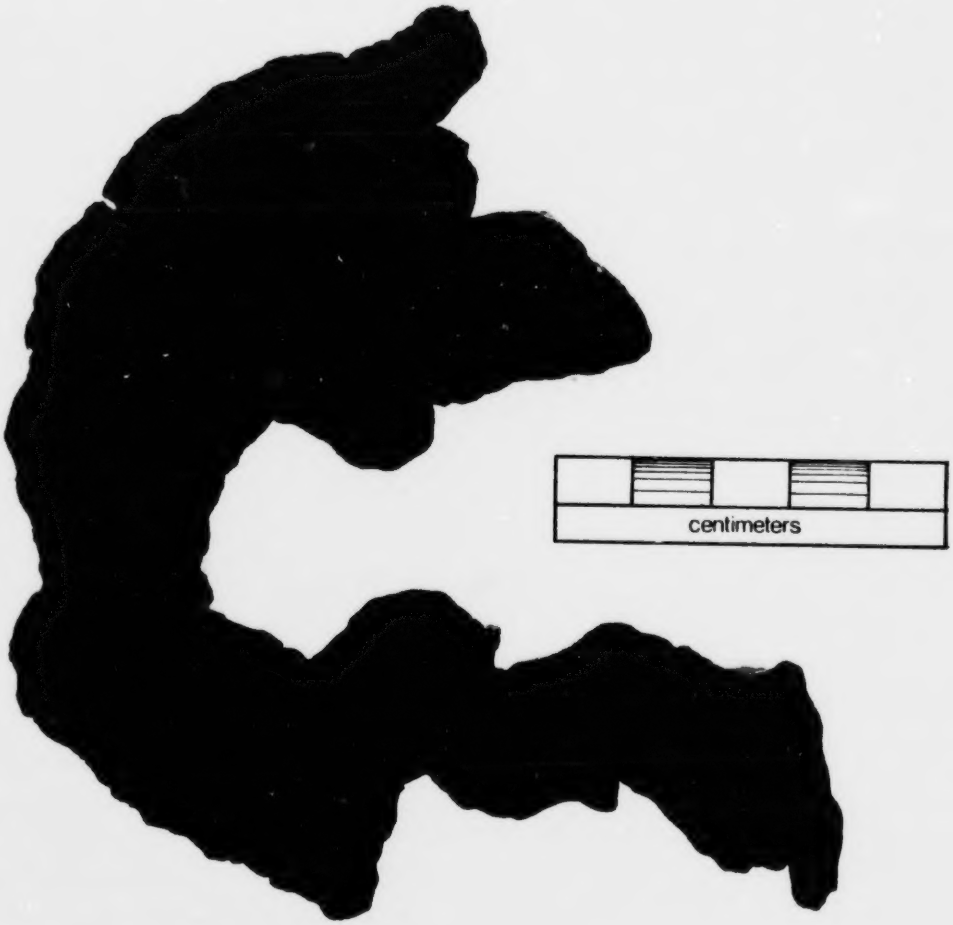

centimeters

PLATE 8 Reconstructed section of a Terminal Woodland vessel - Unit 52N 19E

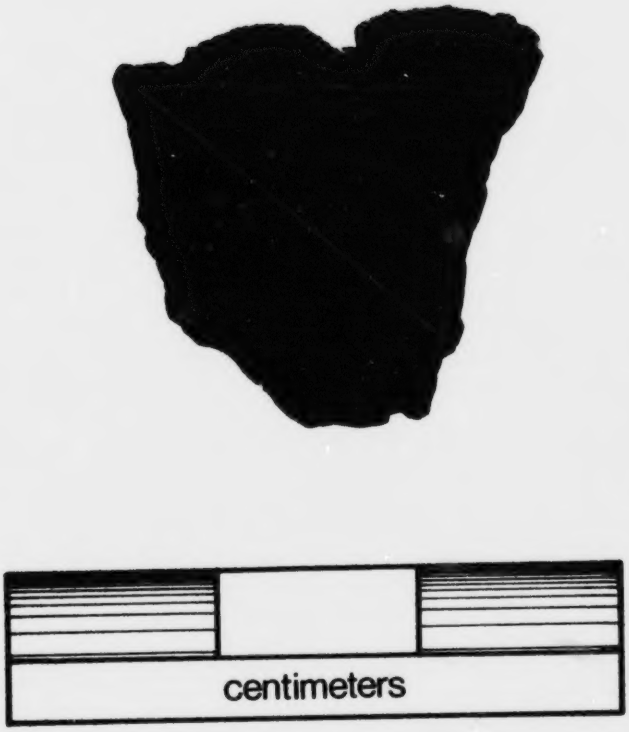

centimeters

PLATE 9 Duck Bay Notched Lip Rimsherd - Unit 47.5N 26E

the Duck and Sclater Rivers, as mentioned earlier, have their sources on Duck Mountain. Although a single sherd does not a transportation network make, it does seem possible to argue that there was an established east-west traffic corridor between Lake Winnipegosis and Duck Mountain prior to the historical recordings of such movements.

Area 6 also produced an abundance of lithic materials; only Unit 52N 19E did not contain stone tools. Table 13 delineates the distribution of lithic tools in Area 6.

TABLE 13

Distribution of Lithic Tools in Area 6

UNIT	BIFACE	CORE	PROJECTILE POINT	UNIFACE	UTILIZED FLAKE
47N 21.5E	1	0	1	0	1
47.5N 26E	0	0	1	1	0
48N 19E	0	0	1	1	1
48N 21E	2	2	1	1	2
48N 24E	0	1	0	0	0

Regardless of their unit of origin, all tools recovered in Area 6 were excavated from either the base of the Ah (dark brown sand) horizon, or within the Ae (light brown sand) horizon. Plates 10, 11 and 12 illustrate the lithic tools recovered in Area 6.

A comparison of the types of lithic debris found in Area 6 with those from the other areas previously discussed shows a distinct difference. For the first time, significant numbers of Product Group IV (secondary trimming) flakes have appeared. They were concentrated

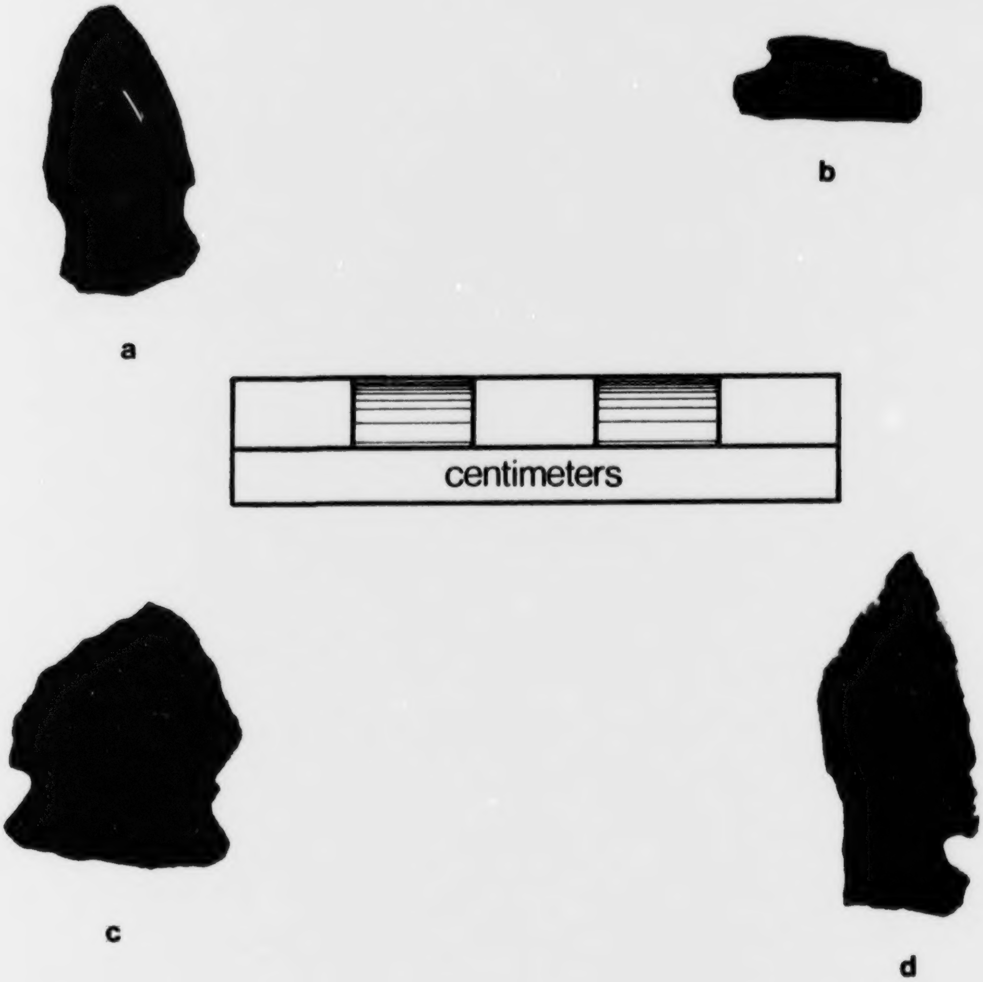

a
b
centimeters
c
d

PLATE 10 Projectile points from Area 6.

Unit 48N 19E a) 16-66
Unit 48N 21E b) 17-249
Unit 47.5N 26E c) 52-37
Unit 47N 21.5E d)
(1980 Strat Pit)

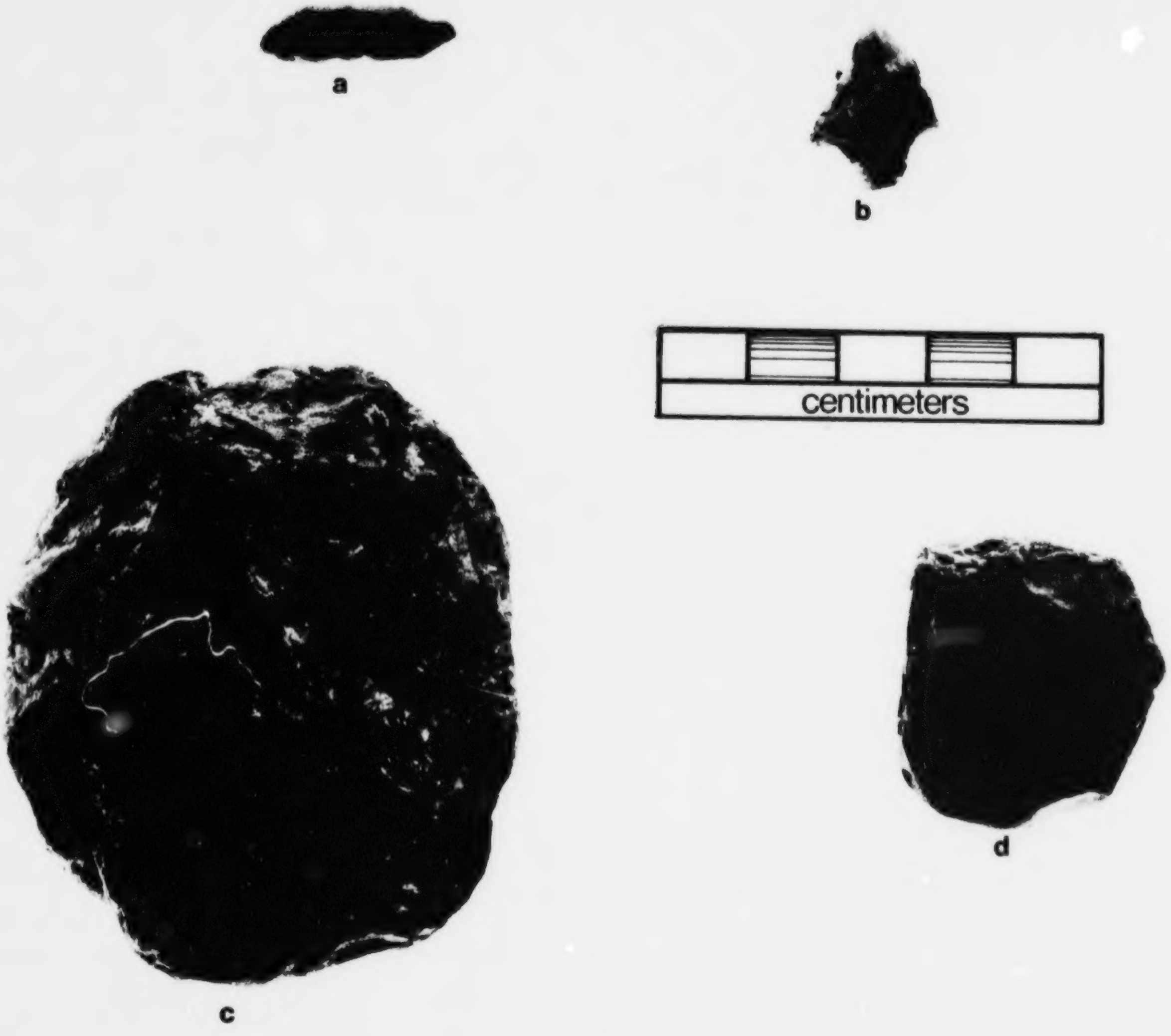

a
b
centimeters
d
c

PLATE 11 Bifaces and cores from Area 6

Unit 48N 21E
Biface fragments a) 17-78
b) 17-92
Cores c) 17-263
d) 17-156

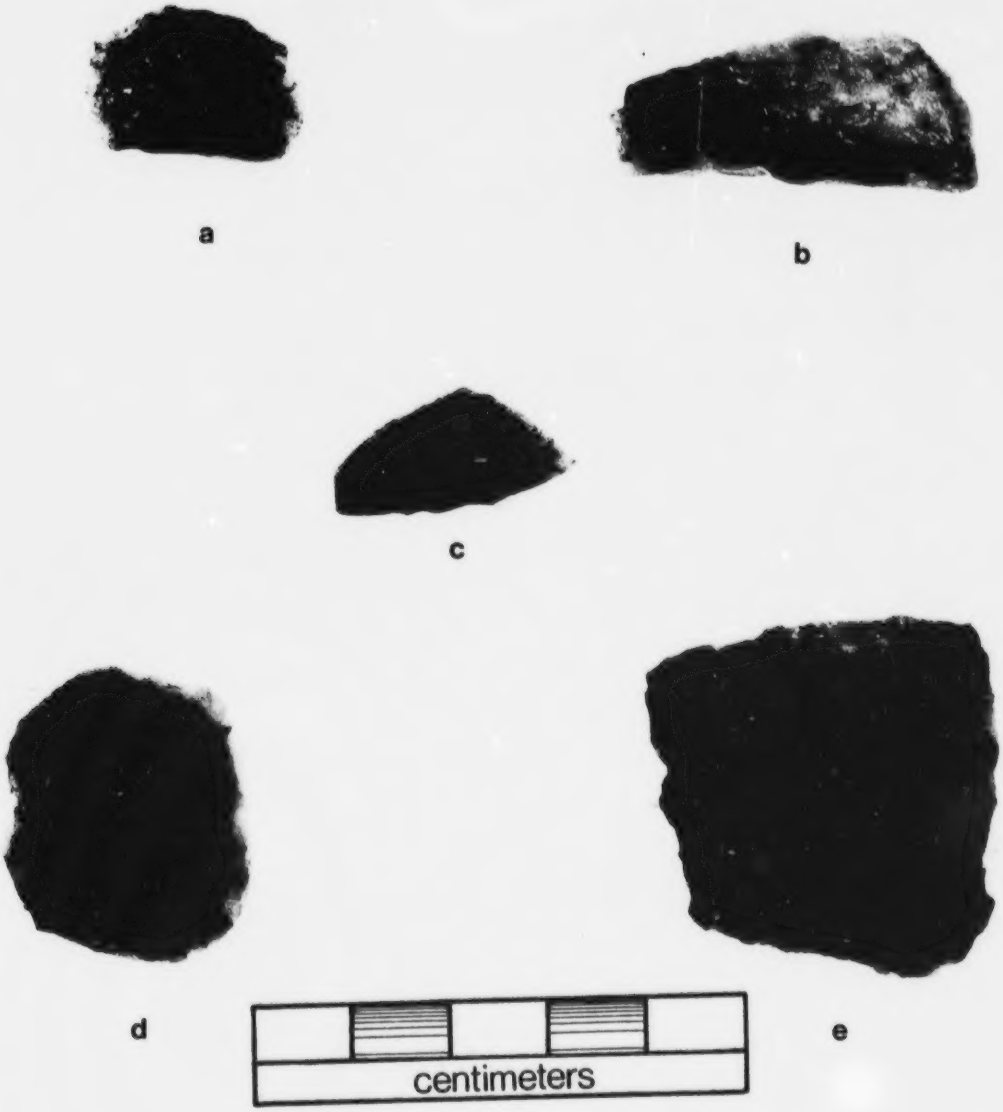


PLATE 12 Unifaces and utilized flakes from Area 6

Unit 48N 21E a) utilized flake 17-150b
c) uniface fragment 17-150a

Unit 47.5N 26E b) uniface fragment 52-14

Unit 48N 19E d) uniface 16-165

Unit 47N 21.5E
(1980 Strat Pit) e) utilized flake

in Units 48N 19E and 48N 21E where they comprised, respectively, 33.6% and 34.5% of the flake recoveries (see Table 14). Raw material utilization, however, continued to overwhelmingly favour Swan River Chert (Table 15).

TABLE 14

Classification of Lithic Debris from Area 6

DEBRIS CLASS	47.5N 26E	48N 19E	48N 21E	48N 24E	52N 19E
Product Group II					
IPF with Cortex	2	7	21	2	6
IPF without Cortex	1	15	65	2	3
SF with Cortex	3	3	19	0	4
SF without Cortex	5	25	133	0	1
SB with Cortex	3	16	60	1	8
SB without Cortex	2	15	89	0	0
Product Group IV					
Uniface Reduction Flake	9	11	72	0	1
Biface Reduction Flake	0	17	66	1	1
Lipped Flake with Cortex	0	1	6	0	0
Lipped Flake without Cortex	0	12	60	1	1
TOTALS	25	122	591	7	25

Faunal remains, though not abundant, were at least present in Area 6. Large mammal fragments were recovered in 47N 21.5E, 47.5N 26E, 48N 19E, 48N 21E and 48N 24E; many of the fragments had been burned. Fish and rabbit bone were also present in 48N 19E. Only 52N 19E had no faunal remains. Obviously, artifactual and faunal materials indicate that most units within Area 6 should be included within an activity centre, but rather than discussing it now, Area 7 will be analyzed first because some of its units connect logically with those in Area 6.

TABLE 15

Distribution of Lithic Raw Materials in Area 6

UNIT	CHERT	KNIFE RIVER FLINT	RHYOLITE	SANDSTONE	SWAN RIVER CHERT	TOTAL
47.5N 26E						
Tools	0	0	0	0	2	2
PG II	0	0	0	0	16	16
PG IV	0	0	1	0	8	9
48N 19E						
Tools	0	0	0	0	3	3
PG II	1	0	0	1	79	81
PG IV	1	0	0	0	40	41
48N 21E						
Tools	0	0	0	0	8	8
PG II	4	0	0	0	383	387
PG IV	2	1	0	0	201	204
48N 24E						
Tools	0	0	0	0	1	1
PG II	0	0	0	0	5	5
PG IV	0	0	0	0	2	2
52N 19E						
Tools	0	0	0	0	0	0
PG II	0	0	0	0	22	22
PG IV	0	0	0	0	3	3
TOTALS	8	1	1	1	773	784

Area 7

Five of the six units comprising Area 7 were located in Grid XII: 36N 27E, 40N 45E, 43N 27E, 43N 31E, and 47N 30E. The sixth unit 39N 20E, fell within Grid III. The terrain in this portion of the site is basically flat, although there are minor local variations due to tree throws. Unit 40N 45E was the only exception; it measured nearly 2 m lower in elevation than the rest of the units (Figures 17 and 18).

Because 40N 45E lay far on the back side of the ridge and fairly close to the northern end of the swampy region, it did not seem likely that it would hold many artifacts. As suspected, the unit contained only one flake and a rusted iron frying pan that had obviously been discarded in the woods years ago. However, the rest of the units positioned to the east and much closer to the foot path contained a fair amount of cultural material (Figure 27).

Two of the units produced pottery fragments that appear to belong to the vessels already located in Area 6. Unit 43N 31E held two bodysherds that have been glued together and which resemble the reconstructed bodysherds from 52N 19E. Five bodysherds were retrieved from 47N 30E; these seem compatible with the Duck Bay Notched Lip rimsherd in 47.5N 26E, although they did not fit precisely with the rim. Diagnostic lithic tools were less frequent in Area 7 (Plate 13). Unit 47N 30E contained two unifaces; a core was recovered from 39N 20E and a biface fragment from 36N 27E. Lithic debris was not so numerous as in Area 6; 47N 30E held the most flakes, with 48 recovered (see Table 16 for classification of the lithic debris). As expected, Swan River Chert was preferred as a raw material for tool production (see Table 17).

All of the units except 40N 45E held at least a few pieces of bone. Unit 36N 27E contained twenty pieces of large mammal long bone and seven tooth fragments. Very small and often burned mammal fragments were found in 39N 20E and 43N 27E. The two units with pottery were also faunally interesting; 43N 31E held fish bone, as well as a large mammal long bone fragment, while 47N 30E had many pieces of a large mammal tooth.

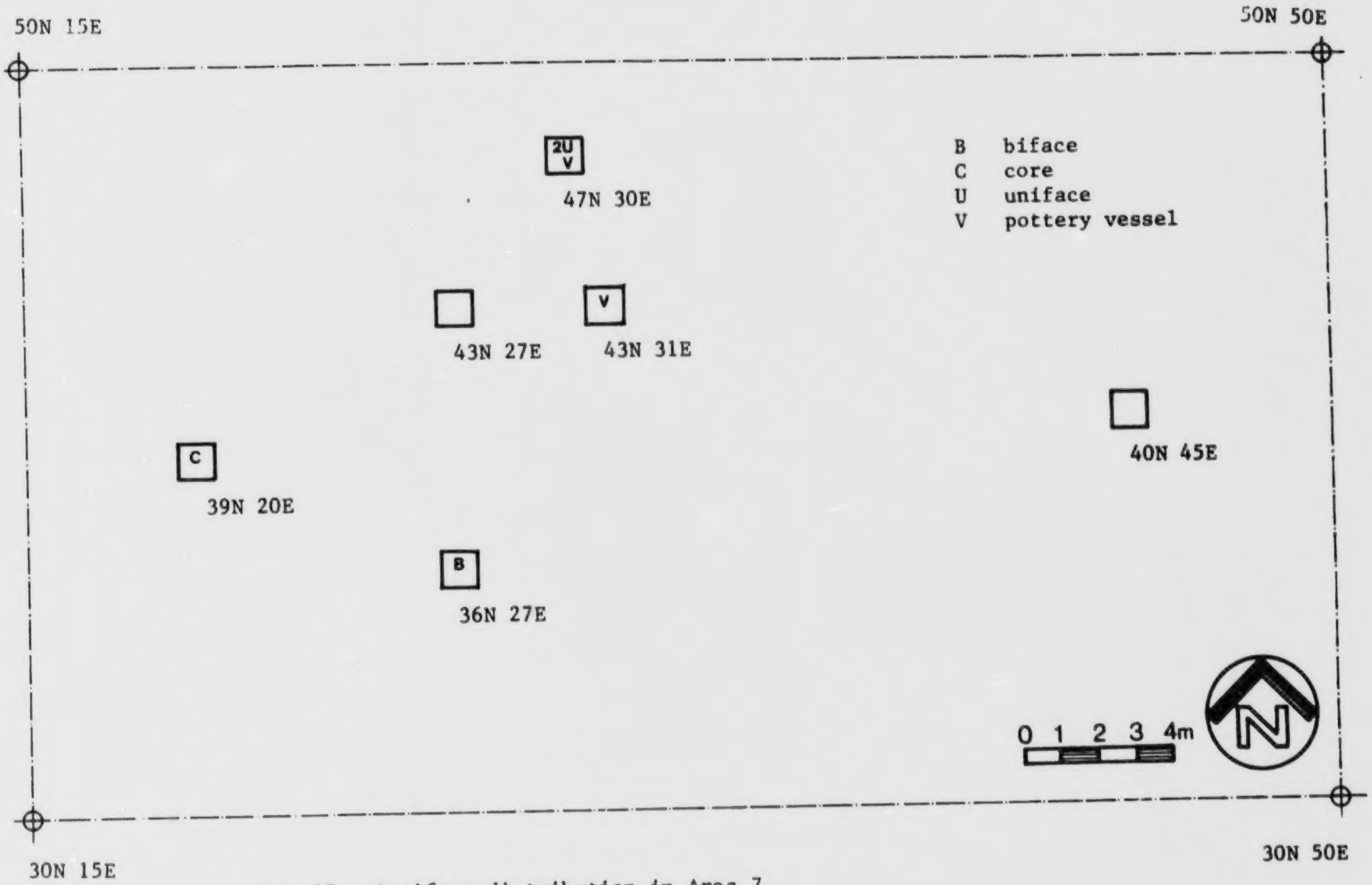

50N 15E
50N 50E
2U
V
47N 30E
B biface
C core
U uniface
V pottery vessel
43N 27E
V
43N 31E
40N 45E
C
39N 20E
B
36N 27E
0 1 2 3 4m
N
30N 15E
30N 50E

Fig. 27 Artifact distribution in Area 7.

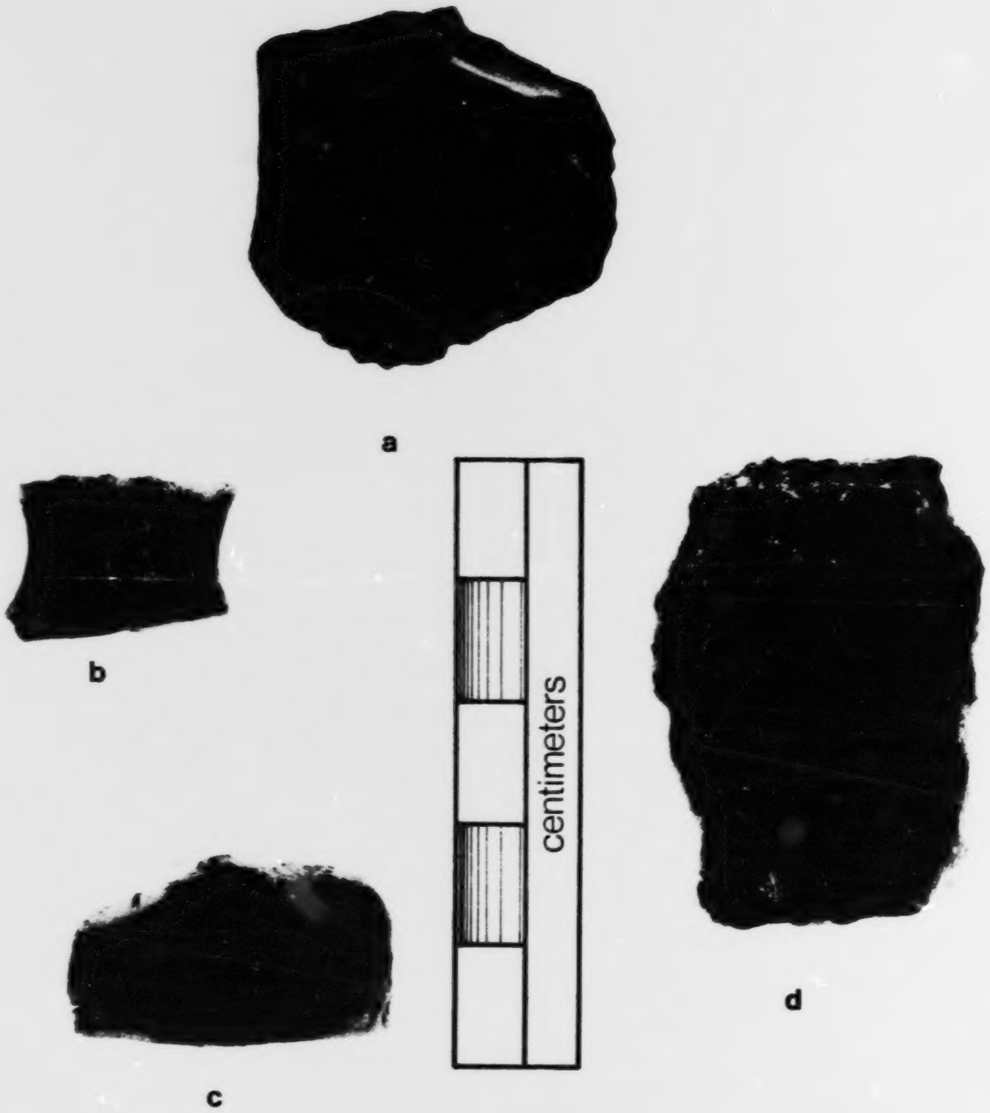

a
b
centimeters
d
c

PLATE 13 Lithic tools from Area 7

Unit 39N 20E a) core 59-6

Unit 36N 27E b) biface fragment 60-1

Unit 47N 30E
Unifaces c) 49-33
d) 49-29

TABLE 16

Classification of Lithic Debris from Area 7

DEBRIS CLASS	36N 27E	39N 20E	40N 45E	43N 27E	43N 31E	47N 30E
Product Group II						
IPF with Cortex	1	4	1	1	0	6
IPF without Cortex	1	1	0	5	5	8
SF with Cortex	0	1	0	3	0	2
SF without Cortex	0	0	0	0	0	13
SB with Cortex	0	3	0	0	0	2
SB without Cortex	0	2	0	3	0	13
Product Group IV						
Uniface Reduction Flake	0	0	0	0	0	1
Biface Reduction Flake	0	1	0	0	0	0
Lipped Flake without Cortex	0	0	0	1	0	3
TOTALS	2	12	1	13	5	48

TABLE 17

Distribution of Lithic Raw Materials in Area 7

UNIT	CHERT	SANDSTONE	SWAN RIVER CHERT	TOTALS
36N 27E				
Tools	0	0	1	1
PG II	1	0	1	2
PG IV	0	0	0	0
39N 20E				
Tools	1	0	0	1
PG II	1	0	10	11
PG IV	0	0	1	1
40N 45E				
Tools	0	0	0	0
PG II	0	0	1	1
PG IV	0	0	0	0
43N 27E				
Tools	0	0	0	0
PG II	1	3	8	12
PG IV	0	0	1	1
43N 31E				
Tools	0	0	0	0
PG II	1	0	4	5
PG IV	0	0	0	0
47N 30E				
Tools	0	0	2	2
PG II	8	0	28	36
PG IV	0	0	4	4
TOTALS	13	3	61	77

Activity Centre C

Certainly among the recoveries from some of the units in Areas 6 and 7, it is possible to delineate another activity centre whose characteristics differ significantly from those discussed previously.

The terrain involved measured approximately 143 m^2, ranging from 43 - 53N to 17 - 31E. All of the excavation units and the 1980 strat pit from Area 6, plus two units, 43N 31E and 47N 30E from Area 7, fell within these parameters. The very size of Activity Centre C distinguished it from the former small localized accumulations of chipping debris, the largest of which covered only 1 m^2.

Not unexpected is the occurrence of bifaces, projectile points, the occasional core and chipping debris from the first stage of tool manufacture (Product Group II), all of which are presumed to be male-associated artifacts connected with hunting activities. However, one also finds artifacts thought to be affiliated with women's activities -- unifacial scraping tools and, for the first time on the site, remnants of at least two individual pottery vessels. In addition, two of the units also contained significant amounts of secondary stage lithic debris (Product Group IV), unifacial and bifacial reduction flakes (see Figure 28 for the location of these artifact clusters). Obviously these remains indicate the presence of larger numbers of people, including females, who probably stayed longer at the site than a brief stop. Although faunal recoveries were not extensive, the presence of both large and small mammal bone, as well as fish remains, tends to support this interpretation.

No definite hearths were located in Activity Centre C, although Unit 48N 19E did contain a concentration of charcoal and charred wood between Levels 2 - 6. However, knowing that the site burned in 1885 makes it impossible to attribute burned wood or bone

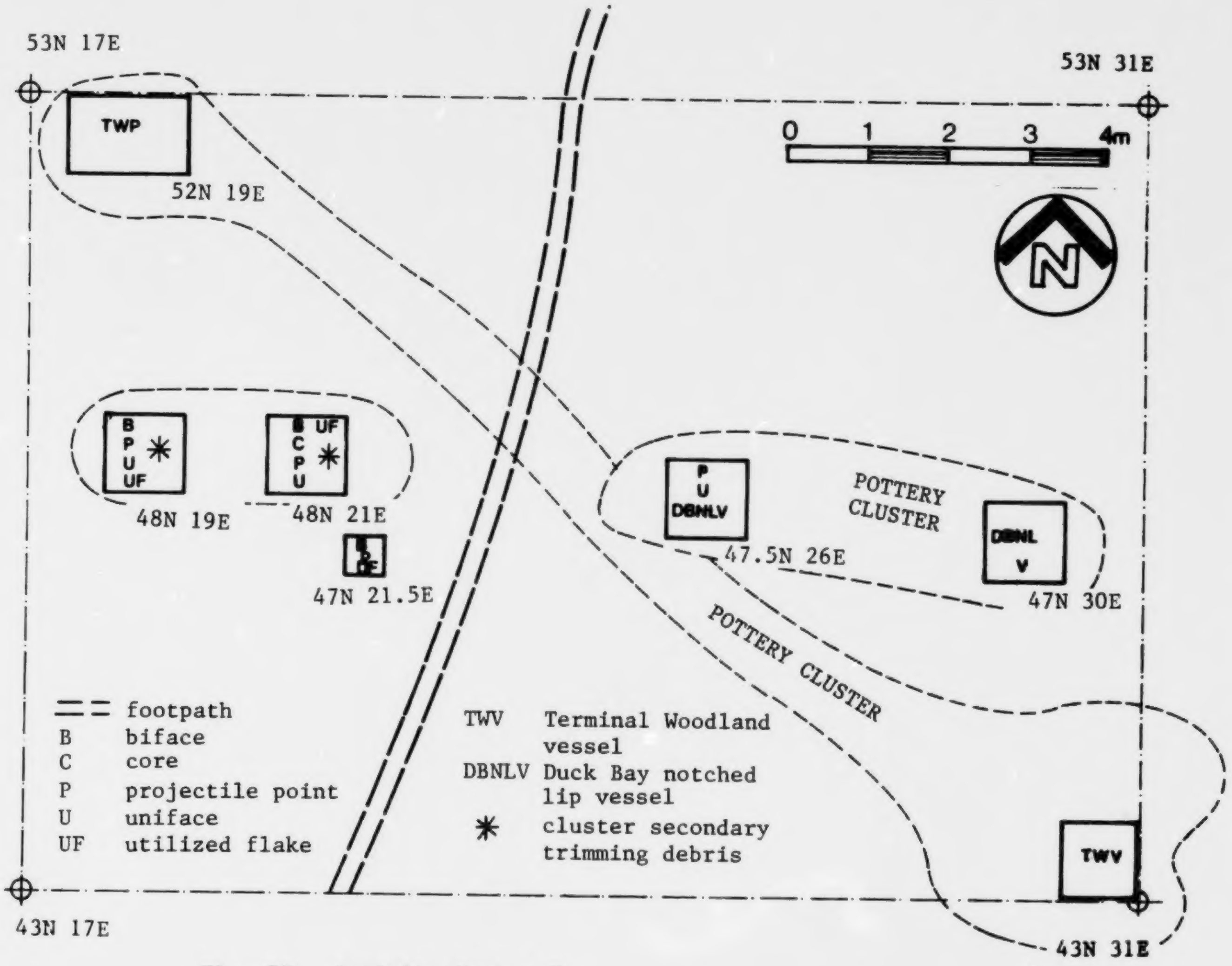

53N 17E
53N 31E
0
1
2
3
4m
N
TWP
52N 19E
B
P
U
UF
48N 19E
B
UF
C
P
U
48N 21E
47N 21.5E
P
U
DBNLV
47.5N 26E
POTTERY CLUSTER
DBNL
V
47N 30E
POTTERY CLUSTER
TWV
43N 17E
43N 31E
footpath
B biface
C core
P projectile point
U uniface
UF utilized flake
TWV Terminal Woodland vessel
DBNLV Duck Bay notched lip vessel
✳ cluster secondary trimming debris

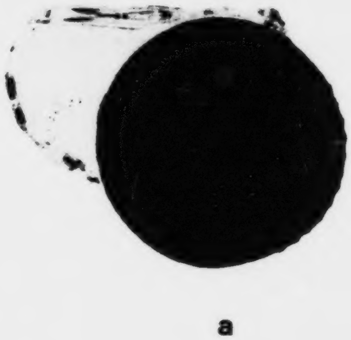
Fig. 28 Activity Centre C.

to prehistoric cooking activities with any certainty. Some historic artifacts were located in the upper levels of these units (Plate 14), indicating at least minimal disturbance. Nevertheless, most prehistoric materials were consistently recovered from similar locations in each unit -- at the base of the Ah horizon (dark brown sand) or within the Ae horizon (light brown sand).

The question of time, in the sense of "when", is not an easy one to handle. On the basis of projectile point and pottery styles, a characterization of Terminal Woodland would certainly be acceptable for Activity Centre C. Carbon-14 dates from FbMb-1, however, which contained Blackduck and Duck Bay pottery as well as similar projectile point styles, ranged all the way from A.D. 680 ± 275 (Dic 845) and A.D. 690 ± 285 (Dic 846) to A.D. 1255 ± 175 and A.D. 1180 ± 110 (GX-5517), a span of possibly 1000 years. The question of duration of occupation is even less answerable, although scarcity of faunal remains would indicate a short period of time. Furthermore, without block excavation of the areas involved, it is impossible to state with any certainty that artifacts from these various units are in fact connected with one another. The distance separating some of the pieces of pottery would tend to support the notion that the remains are related, but because the various pieces have not been actually fitted together, one must be content with mere presuppositions.

Area 8

The four units which comprised Area 8, 24N 5E, 28N 6E, 31N 6E and 32N 11E, fell within Grid III, excepting the first which was



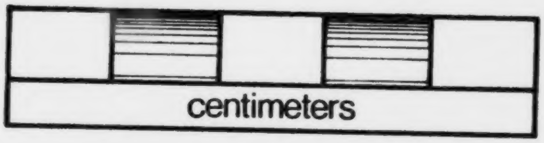


PLATE 14 Historic artifacts from Activity Centre C

Unit 59N 19E a) bottle top and cap
Unit 48N 19E b) shotgun shell
Unit 47.5N 26E c) china plate fragment
d) china cup fragment

located in Grid II (Figures 17 and 18). The first three units were positioned on the flat terrace behind the beach, while 32N 11E straddled the edge of the ridge at an elevation 2 m higher than the beach. Although the location of these units did not appear promising initially, a few artifacts were surface-collected from the beach and it was decided to put a few excavation units onto the terrace (Figure 29). Disappointingly, the three terrace units contained virtually nothing. Units 24N 5E and 31N 6E held three flakes each and the latter unit also produced a fragment of a large mammal tooth. Unit 28N 6E contained only a rabbit vertebra. Unit 32N 11E, located at the edge of the ridge, proved equally unproductive; it too, held only three flakes.

Area 9

Area 9 contained only two units, 28N 16E and 29N 15E, both of which were situated in Grid III (see Figures 17 and 18). Despite the small number of units, artifacts unique to the site and also to west-central Manitoba were recovered. Area 9 fell within Grid II of Gibson's magnetic survey (see Figure 17) and provided an interesting test of this technqiue for locating prehistoric occupation areas. During his first run over the grid, Gibson obtained an anomalous reading near Unit 29N 15E, which was under excavation at the time. Visual inspection did not reveal any historic metal objects, nor were any historic materials contained within the excavation unit itself. A second set of magnetic readings was then made at intervals of 50 cm, with the resulting map (Figure 30) showing a concentration of anomalous

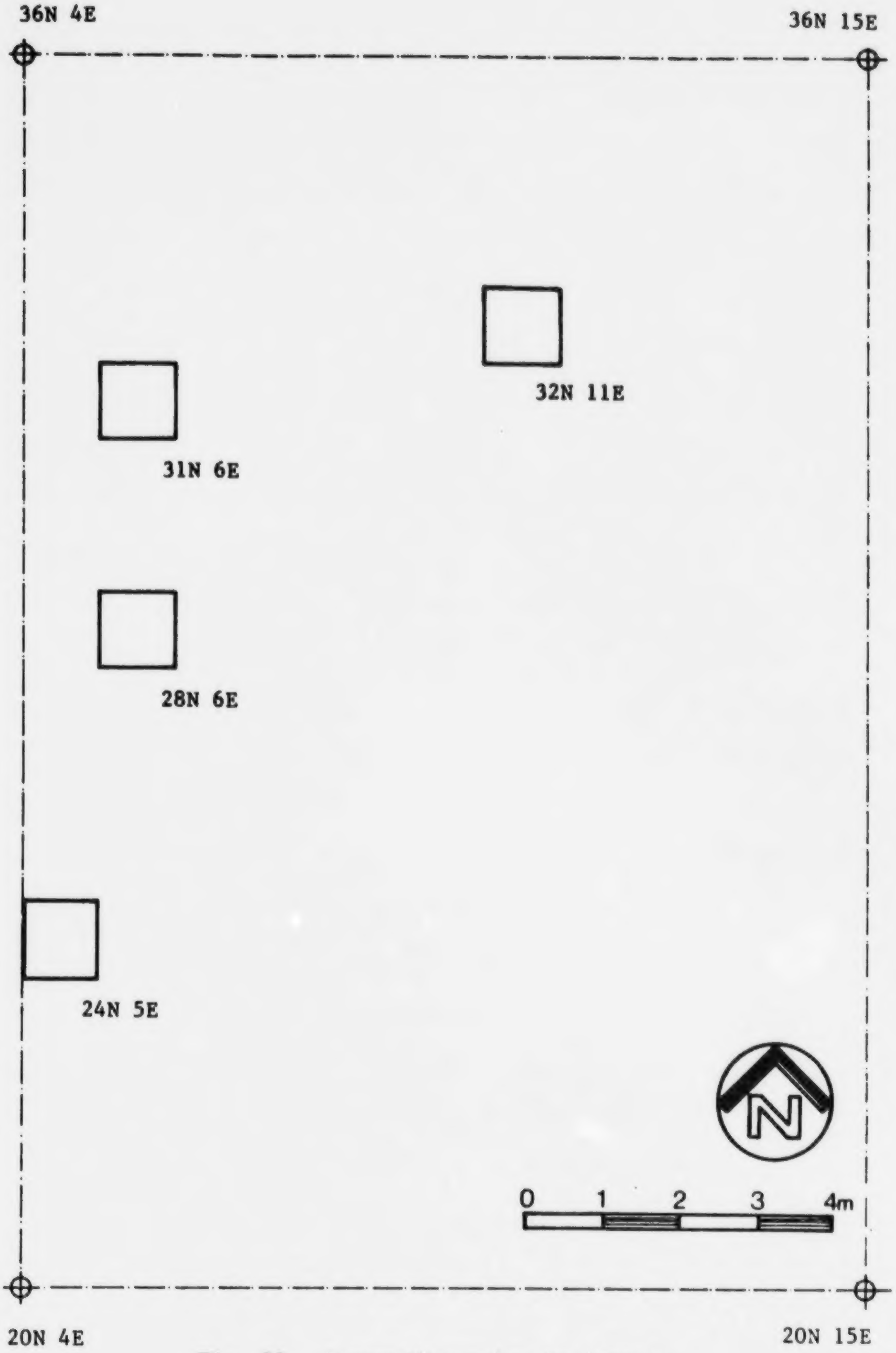
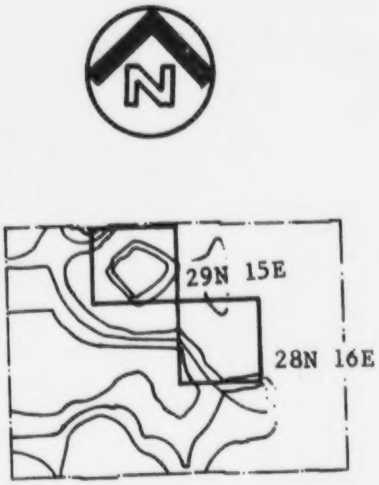

36N 4E
36N 15E
32N 11E
31N 6E
28N 6E
24N 5E
N
0
1
2
3
4m
20N 4E
20N 15E

Fig. 29 Excavation units in Area 8.


N
29N 15E
28N 16E

Contour interval 50cm

Fig. 30 Magnetic survey map of Area 9.

readings centred approximately on Unit 29N 15E. As the anomalous readings continued outside the unit, however, a second excavation unit was measured in at 28N 16E.

Because the proton magnetometer does not respond to the presence of lithic materials, it was expected that the two units would contain Native pottery and/or a hearth. No obvious evidence of fire was noticed, other than the ubiquitous small pieces of charcoal observed in most units and attributed to the 1885 forest fire. However, on Levels II - V at a depth of 9 - 13 cm DBS, a concentration of 32 sherds belonging to a single miniature pottery vessel were retrieved from Unit 29N 15E (Plate 15). As in other units, these sherds clustered either at the base of the Ah horizon (dark brown sand) or were found throughout the Ae horizon (light brown sand). Another sherd from this same vessel was recovered in Unit 28N 16E. This small vessel was likely manufactured by making a pinch pot base and then building up its sides and rim with small coils. One of the sherds exhibits a perfect coil break, which is not unexpected considering how difficult it would have been to smooth and blend together coils on such a small vessel (Vera Slobodian, Winnipeg potter, Personal Communication; Rye 1981: 67-68). The vessel bears fabric impressions on its exterior and its lip is notched, much like that of the Duck Bay Notched Lip vessel from Area 6. Interestingly enough, although small pottery pipes were recovered at the Duck Bay Site in 1976 (Snortland-Coles 1979) and 1977 (Badertscher: In Press), no miniature vessels were ever recovered from this most prolific site.

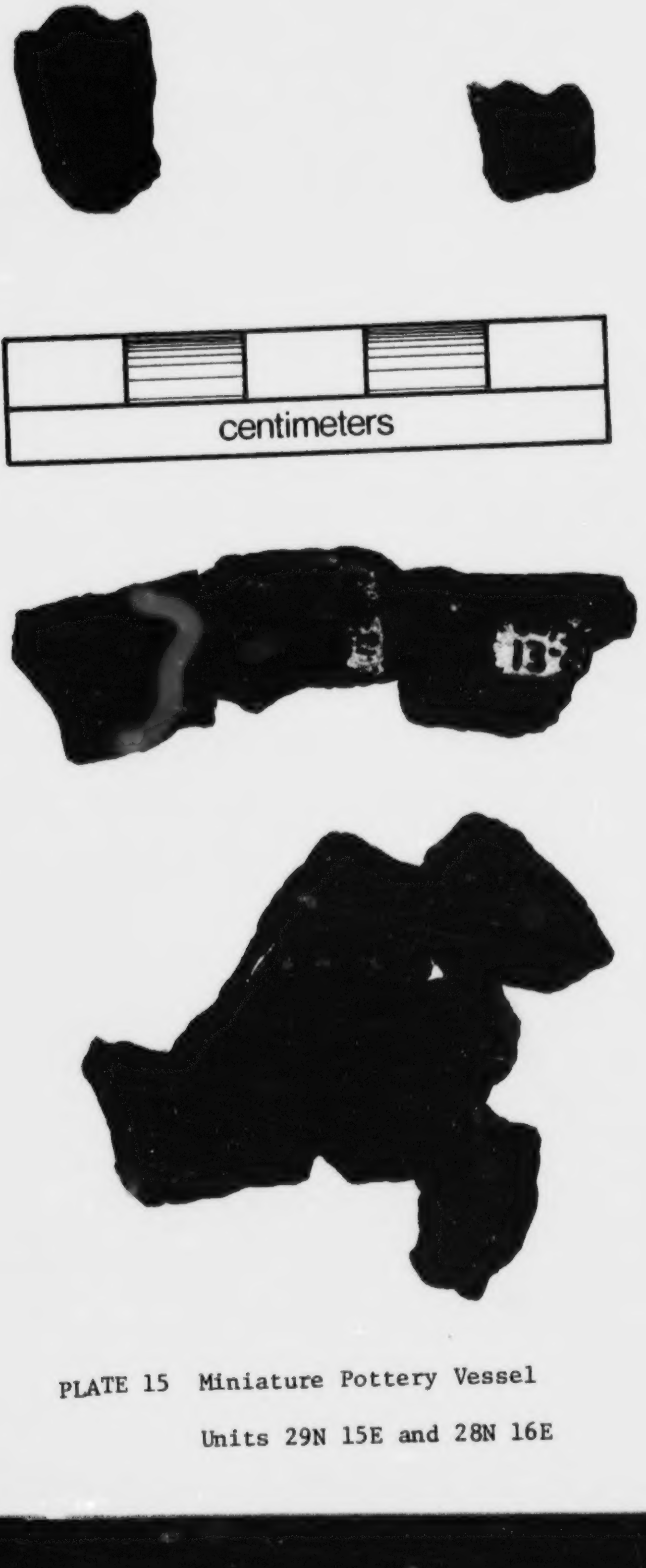

centimeters

PLATE 15 Miniature Pottery Vessel

Units 29N 15E and 28N 16E

An equally unusual recovery was the soapstone bead located in Unit 28N 16E (Plate 16). In this unit, which was not nearly as productive as 29N 15E, artifacts were confined primarily to the dark sand of the Ah horizon. The bead is quite soft and easily scratched with a fingernail. On one end, it has been worn quite thin by rubbing against the material (leather thong?) used for fastening it. Similar wear can be observed on buttons, where the fastening threads move back and forth in the holes, wearing down the edges.

In addition to these unique recoveries, several stone tools were also found in the two units (Figure 31). Two chert bifaces were recovered from 28N 16E and three utilized flakes from 29N 15E (Plate 17). Despite its somewhat unusual contents, Area 9 retained similarities to previous areas in the type of lithic debitage recovered; virtually all of it was classified as by-products of the initial stages of tool manufacture (Table 18). Exceptional, however, was the distribution of raw materials (Table 19). For the first time at the site, other types of chert outranked Swan River Chert as the preferred lithic material; 49.01% of the stone utilized was chert other than Swan River Chert, which totalled only 47.06%. The two bifaces recovered in Unit 28N 16E are both fashioned from a fine-grained chert not seen elsewhere at Childs Lake, either among beach cobbles or within the excavation units.

As expected, faunal recoveries were scanty. No bone was found in 28N 16E, but 29N 15E held one small fragment of mammal bone and six pieces of fish bone, probably all from the same individual.

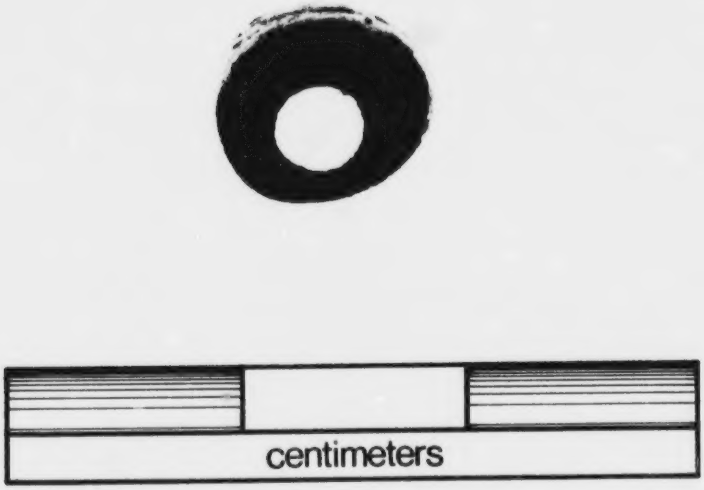

centimeters

PLATE 16 Soapstone bead from Unit 28N 16E

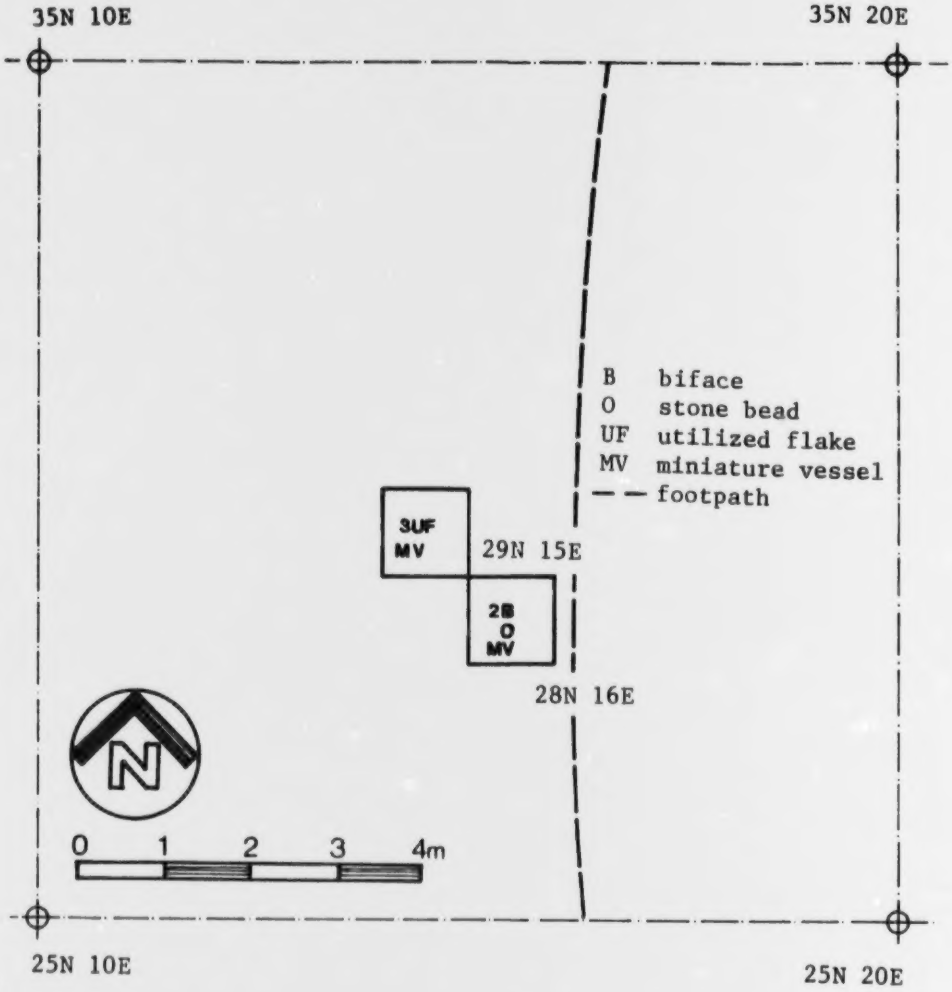

35N 10E
35N 20E
B biface
O stone bead
UF utilized flake
MV miniature vessel
— — footpath
3UF
MV
29N 15E
2B
O
MV
28N 16E
N
0 1 2 3 4m
25N 10E
25N 20E

Fig. 31 Artifact distribution in Area 9.

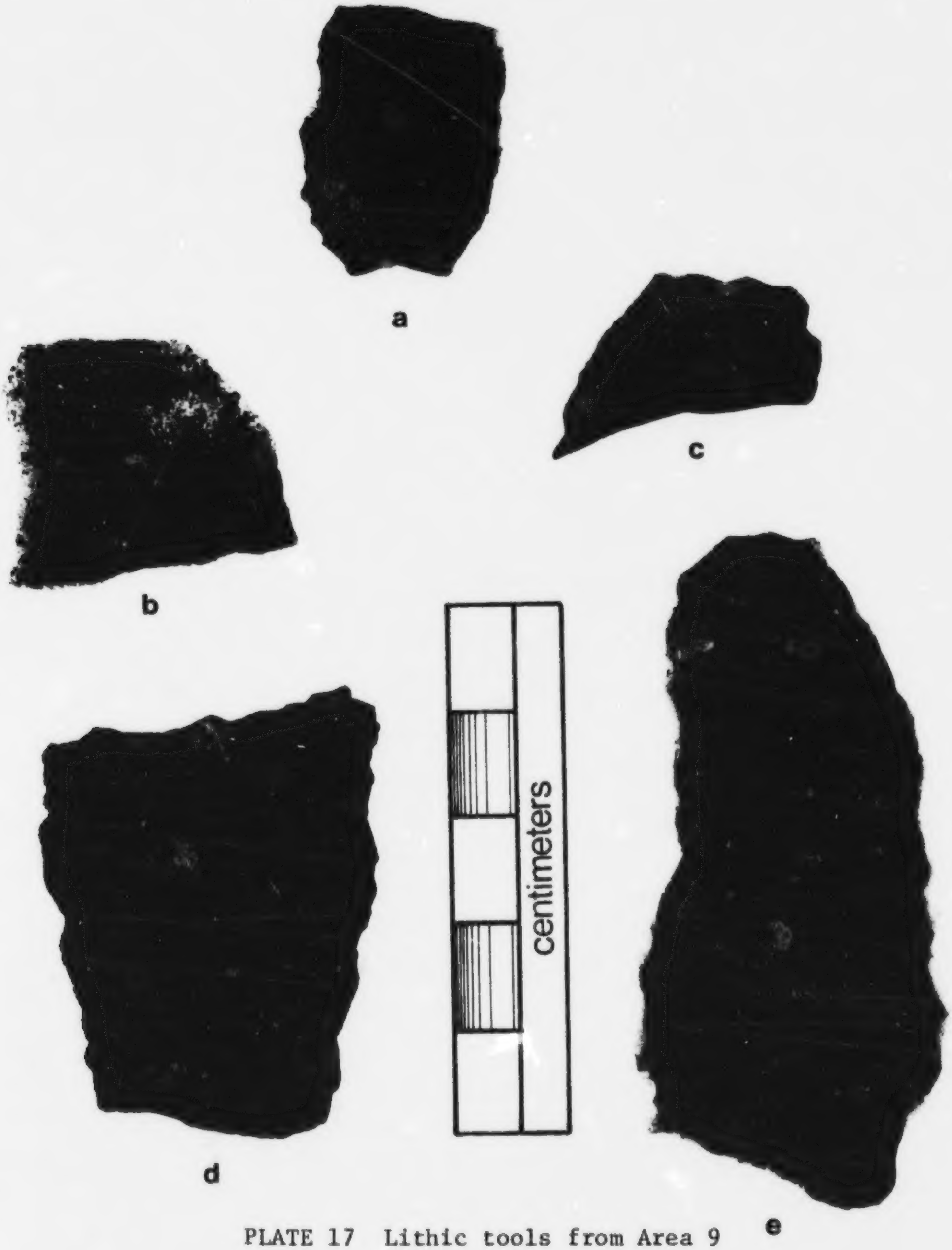

a
b
c
centimeters
d
e

PLATE 17 Lithic tools from Area 9

Unit 29N 15E
Utilized flakes a) 13-52
b) 13-44
d) 13-58

Unit 28N 16E
Bifaces c) 28-5
e) 28-5

TABLE 18

Classification of Lithic Debris from Area 9

DEBRIS CLASS	28N 16E	29N 15E
Product Group II		
IPF with Cortex	0	4
IPF without Crotex	5	4
SF with Cortex	1	1
SF without Cortex	1	1
SB with Cortex	5	12
SB without Cortex	6	3
Product Group IV		
Biface Reduction Flake	1	0
Lipped Flake without Cortex	0	1
TOTALS	19	26

TABLE 19

Distribution of Lithic Raw Materials in Area 9

UNIT	CHERT	QUARTZITE	SWAN RIVER CHERT	SOAPSTONE	TOTAL
28N 16E					
Tools	2	0	0	1	3
PG II	13	1	4	0	18
PG IV	1	0	0	0	1
29N 15E					
Tools	0	0	3	0	3
PG II	8	0	17	0	25
PG IV	1	0	0	0	1
TOTALS	25	1	24	1	51

Activity Centre D

Certainly the two units comprising Area 9 should be considered an activity centre. Artifactual recoveries, as well as the magnetic survey map, attest to this fact. It is unfortunate that time constraints did not permit further excavations in Area 9. Additional units adjacent to 28N 16E and 29N 15E would likely have been productive.

Interpreting the artifacts found in Activity Centre D presents difficulties. The absence of extensive faunal remains and/or a hearth indicates a short occupation; however, it is also possible that not all of the activity centre was excavated and, conseqeuntly, these features were not uncovered. The artifacts recovered do not point unambiguously to size or composition of the group occupying this area either. Stone tools are generally considered to be male-affiliated but the soapstone bead cannot be associated exclusively with either sex. The miniature vessel is also problematic. Pottery presumably indicates the presence of females on a site, yet researchers do not agree upon an interpretation for miniature vessels. Certainly they cannot be considered "toy" or "juvenile" pots made by youngsters just learning the craft, although that is a common explanation for them. In many instances, miniature vessels are exquisitely made and decorated; their manufacture requires more skill than that utilized in the manufacture of most large pots. Trigger (1969: 65) noted that Huron women made small pottery vessels for cooking food separately during their menstrual periods, but ethnographically, Huron men are reported to have made their own pipes (Trigger 1969: 35, quoting Boucher in 1664). Men using as well as making small ceremonial vessels is not unknown among the Northern Plains groups either (Syms 1979). Therefore, one can see that it is impossible to interpret these relatively few and ambiguous remains with much certainty. It becomes necessary to accept the broad interpretation of a few people, possibly a small family group, occupying this area for a short period of time.

Area 10

Although the six units comprising Area 10 fell within Grid 11, they were not located in similar terrain. Four units, 9N 8E, 11.5N 10.5E, 15N 8E and 18N 11E, were positioned on the relatively flat top of the ridge running parallel to the lake throughout the length of the site. The remaining units, 10N 19E and 15N 22E, were located on the back side of the ridge nearer the swampy area at an elevation of 1 to 1.5 m lower than the units on the ridge. The foot path to the cottage lots ran along the ridge between 9N 8E and 11.5N 10.5E, trending from northeast to southwest (see Figures 17, 18 and 32).

The physical location of the excavation units seemed to correlate with artifact recoveries, for Units 10N 19E and 15N 22E contained virtually nothing. There were, literally, no materials recovered from 10N 19E, while 15N 22E produced only one flake and a half of a hazelnut seed (Corylus sp.). Each of the remaining four units contained at least one stone tool, although only 11.5N to 10.5E held more than a few flakes. Noteworthy among the tools was a biface fragment fashioned of Knife River Flint and recovered in 15N 8E (see Plate 18). As usual, lithic debitage favoured the initial stages of

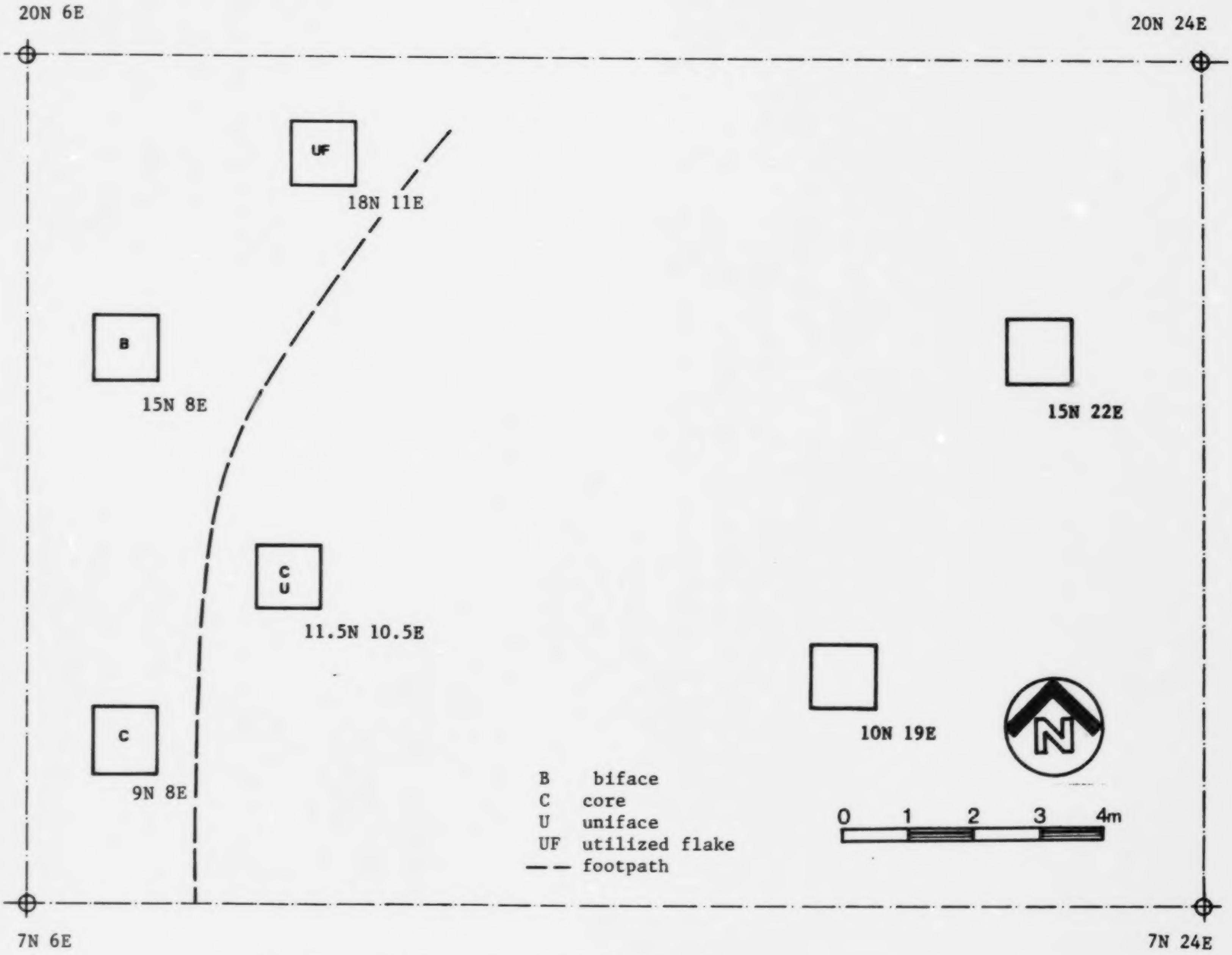

20N 6E
20N 24E
UF
18N 11E
B
15N 8E
15N 22E
C
U
11.5N 10.5E
10N 19E
N
C
9N 8E
B biface
C core
U uniface
UF utilized flake
— — footpath
0
1
2
3
4m
7N 6E
7N 24E

Fig. 32 Artifact distribution in Area 10.

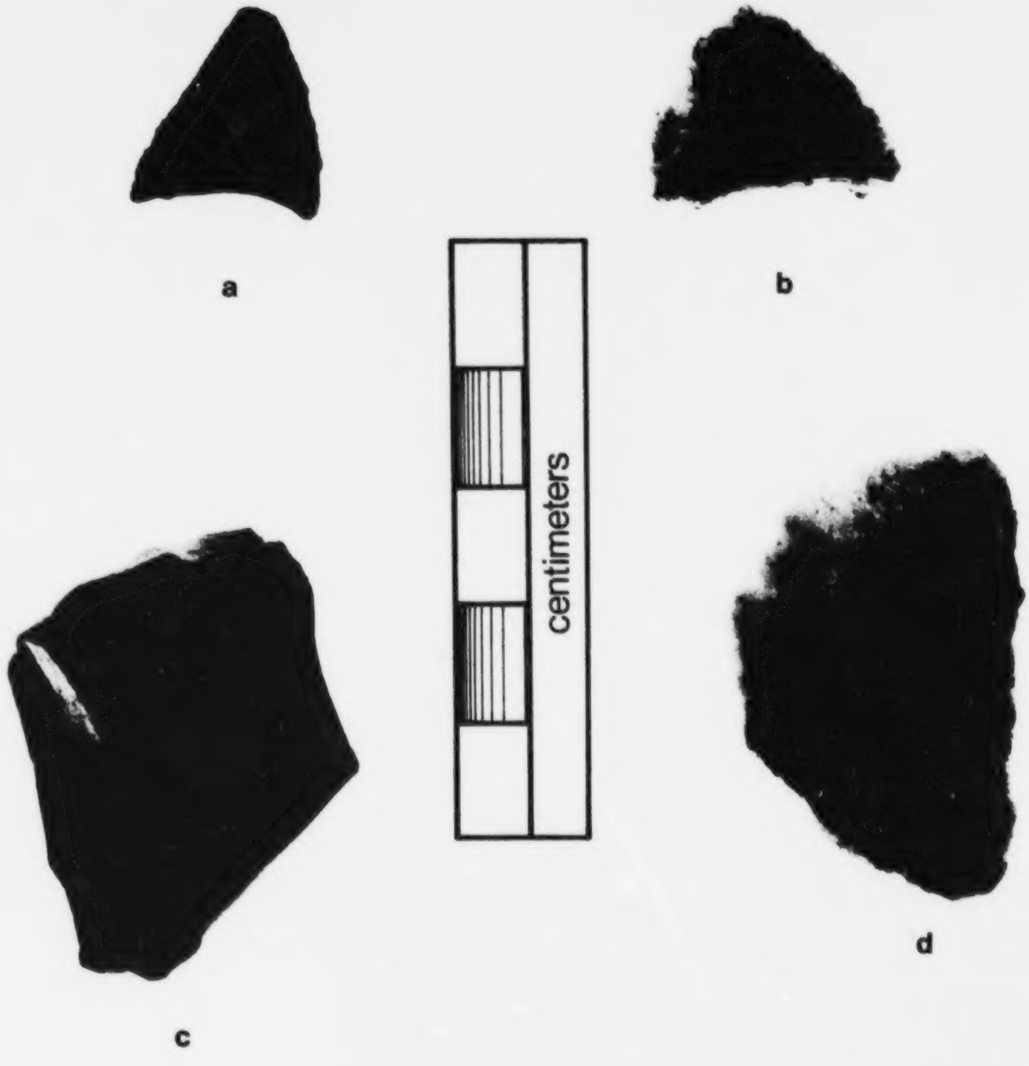


PLATE 18 Lithic Tools from Area 10

Unit 18N 11E a) utilized flake 10-13

Unit 15N 8E b) biface fragment of Knife River Flint 14-5

Unit 11.5N 10.5E c) core 27-6

Unit 11.5N 10.5E d) uniface 27-16

tool production (see Table 20) and Swan River Chert was the preferred raw material (see Table 21). No pottery was found in any of the units, and only a few unidentifiable fragments of mammal bone were recovered: two fragments each from 9N 8E and 18N 11E, plus a piece of large mammal tooth from 15N 8E.

TABLE 20

Classification of Lithic Debris from Area 10

DEBRIS CLASS	9N 8E	11.5N 10.5E	15N 8E	18N 11E
Product Group II				
IPF with Cortex	0	7	2	2
IPF without Cortex	7	11	0	2
SF with Cortex	0	1	1	1
SF without Cortex	6	10	3	1
SB with Cortex	9	10	0	1
SB without Cortex	4	15	0	2
Product Group IV				
Uniface Reduction	0	2	0	0
Biface Reduction	1	7	1	0
Lipped Flake with Cortex	0	0	0	1
Lipped Flake without Cortex	0	2	0	0
TOTALS	27	65	7	10

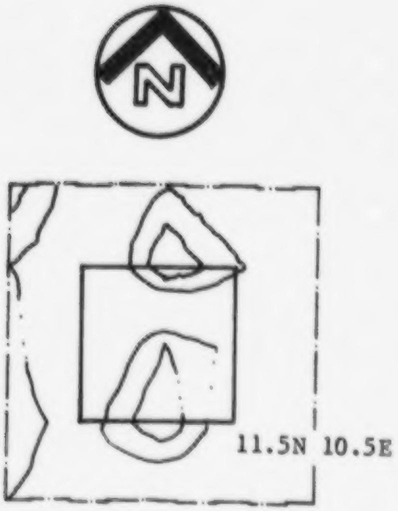
TABLE 21

Distribution of Lithic Raw Materials in Area 10

UNIT	CHERT	KNIFE RIVER FLINT	SANDSTONE	SWAN RIVER CHERT	TOTALS
9N 8E					
Tools	0	0	0	1	1
PG II	0	0	1	25	26
PG IV	0	0	0	1	1
11.5N 10.5E					
Tools	1	0	0	1	2
PG II	2	0	0	52	54
PG IV	0	0	0	11	11
15N 8E					
Tools	0	1	0	0	1
PG II	1	0	0	5	6
PG IV	0	0	0	1	1
18N 11E					
Tools	0	0	0	1	1
PG II	0	0	3	6	9
PG IV	0	0	0	1	1
TOTALS	4	1	4	105	114

Activity Centre E

Within Unit 11.5N 10.5E on Levels IV - VIII at a depth of 6 - 16 cm DBS was a small patch of intensive red sand associated with lithic tools and debris as well as small pieces of charcoal. It was designated "Activity Centre E". The location of this unit was determined by Gibson's magnetic survey, which produced anomalous readings in the vicinity (Figure 33). With the exception of the charcoal fragments, only lithic materials were recovered from 11.5N 10.5E. Presumably the red, charcoal-flecked sand is the remnant of a



Contour interval 50cm

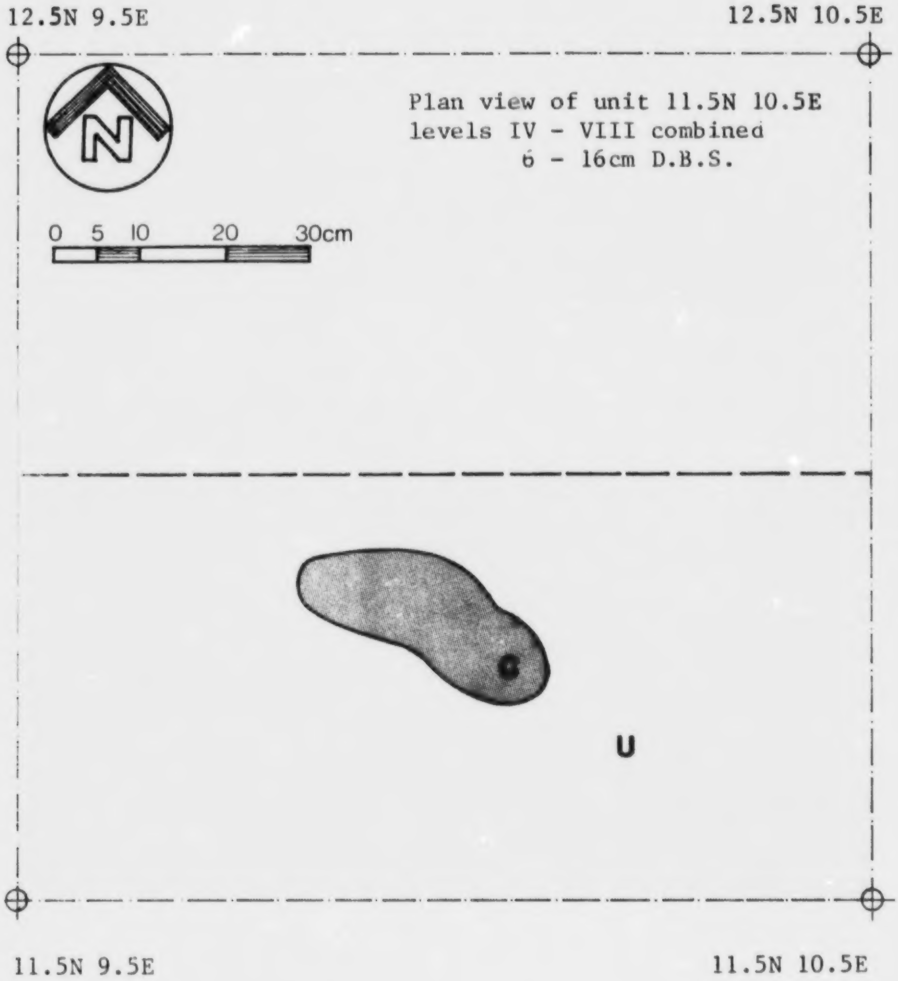
Fig. 33 Magnetic survey map from Area 10.

former hearth. Because the sandy soils associated with the ridge are quite well drained, it is likely that many common characteristics connected with hearths, e.g., ash deposits, have literally washed away over the years.

The red sand patch was located slightly south of the centre of the unit (Figure 34). Oval in shape, it trended from northwest to southeast in the unit and extended for a length of 20 cm at its maximum. Of the 65 flakes recovered in this unit, 55 were found within or close to the patch of red sand. Many of the flakes exhibited a waxy quality commonly associated with chert that has been subjected to high temperatures. The core and the uniface were also found in this general area. Ten per cent of the flakes recovered from 11.5N 10.5E resulted from the manufacture or renewing of bifaces or unifaces. A plausible interpretation for Activity Centre E would be the remains of a small fire, where an individual sat making or sharpening stone tools.

Area 11

Eight 1 x 1-m excavation units were contained within Area 11. Three of these units, 11N 26E, 12N 26E and 13N 26E, fell within Grid XIII, while the remaining five (11N 25E, 12N 24E, 12N 25E, 13N 24E and 13N 25E) were located in Grid II (see Figures 17, 18 and 35). These eight units comprised a block excavation that expanded from the original test unit, 12N 25E, which had been selected randomly in the sampling design. Ironically, initial impressions of the likelihood of any recoveries from 12N 25E were quite negative. The eastern edge of


12.5N 9.5E
12.5N 10.5E
N
Plan view of unit 11.5N 10.5E
levels IV - VIII combined
6 - 16cm D.B.S.
0 5 10 20 30cm
C
U
11.5N 9.5E
11.5N 10.5E

C	core
U	uniface

Dark shading -- red sand
Light shading -- contained 85% of flakes

Fig. 34 Activity Centre E.

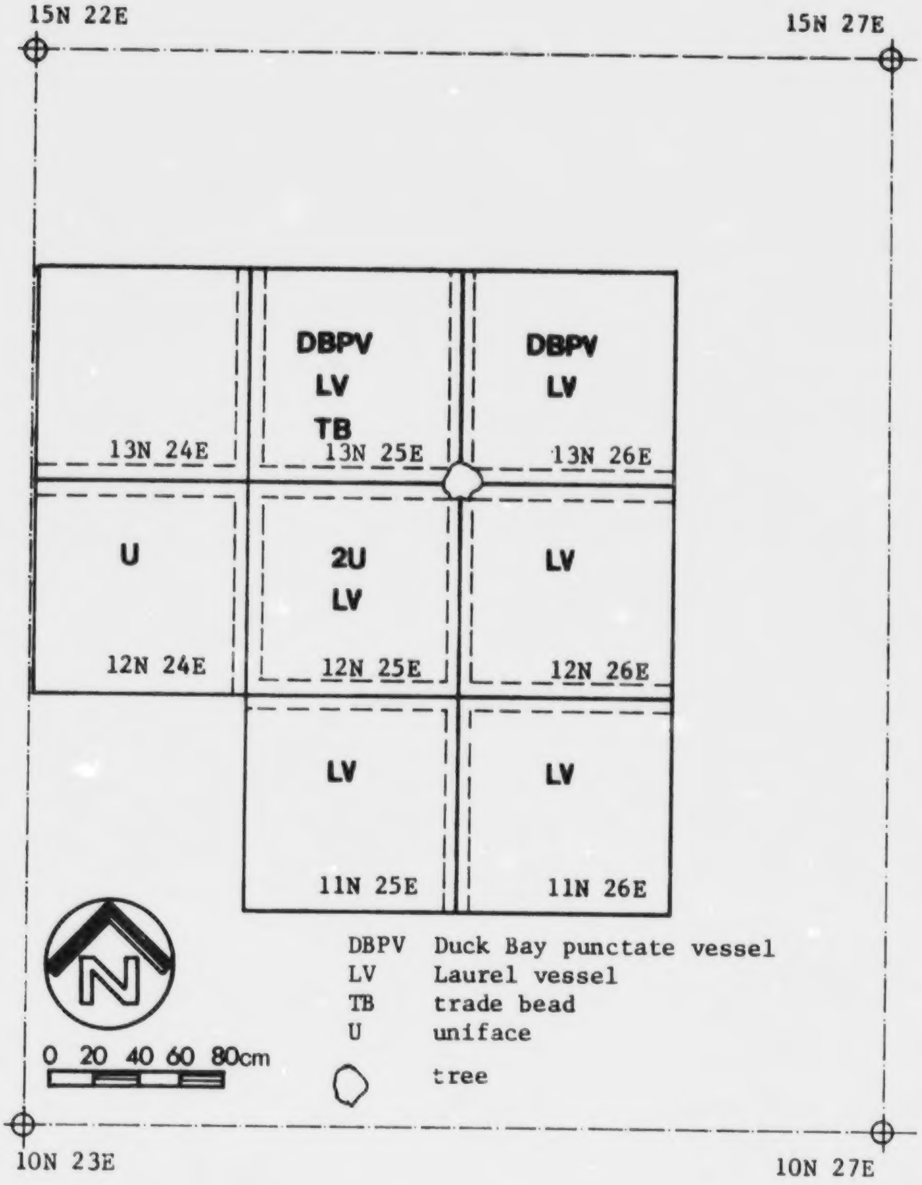

15N 22E
15N 27E
DBPV
LV
TB
13N 24E
13N 25E
DBPV
LV
13N 26E
U
12N 24E
2U
LV
12N 25E
LV
12N 26E
LV
11N 25E
LV
11N 26E
N
0 20 40 60 80cm
DBPV Duck Bay punctate vessel
LV Laurel vessel
TB trade bead
U uniface
tree
10N 23E
10N 27E

Fig. 35 Artifact distribution in Area 11.

Grid II lay far to the east of the crest of the ridge. Elevation in this area was, at a minimum, 2 m lower than on the ridge and, in addition, the unit lay uncomfortably close to the swampy portion of the site with its associated insect life. The eight units were situated in fairly dense mixed woods; a large white spruce (Picea glauca) occupied the space where four of the units joined at their corners and its roots spread throughout Units 12N 25E, 13N 26E, 12N 26E and 13N 25E (Plate 19). The terrain at this locale sloped gradually toward the east, with the two units that measured 24 m east being 40 cm higher than those located at 26 m east.

Despite limited expectations, 12N 25E produced over 800 potsherds eventually, all of which belonged to a single, plain-rimmed, coconut-shaped, undecorated Laurel vessel which has been partially reconstructed (see Plates 20 and 21). By far the majority of sherds belonging to this vessel were recovered in 12N 25E, but lesser numbers were also found in 11N 25E, 11N 26E, 12N 26E, 13N 25E and 13N 26E. Unifaces were also recovered in 12N 24E and 12N 25E; one of these was fashioned of Knife River Flint (Plate 22). Many of the potsherds were associated with the remains of a hearth which was located underneath the spruce tree on the southeast. The hearth stood out prominently on the north wall of 12N 25E and was visible on both sides of the balk separating 12N 24E and 12N 25E (Figure 36; Plate 23).

In addition to this rather remarkable find, Units 13N 25E and 13N 26E also contained sherds belonging to a rim section of yet another vessel (Plate 24). The style of this pot closely resembles that termed Duck Bay Punctate by both Snortland-Coles (1979) and the author

PLATE 19 Area 11 during excavation

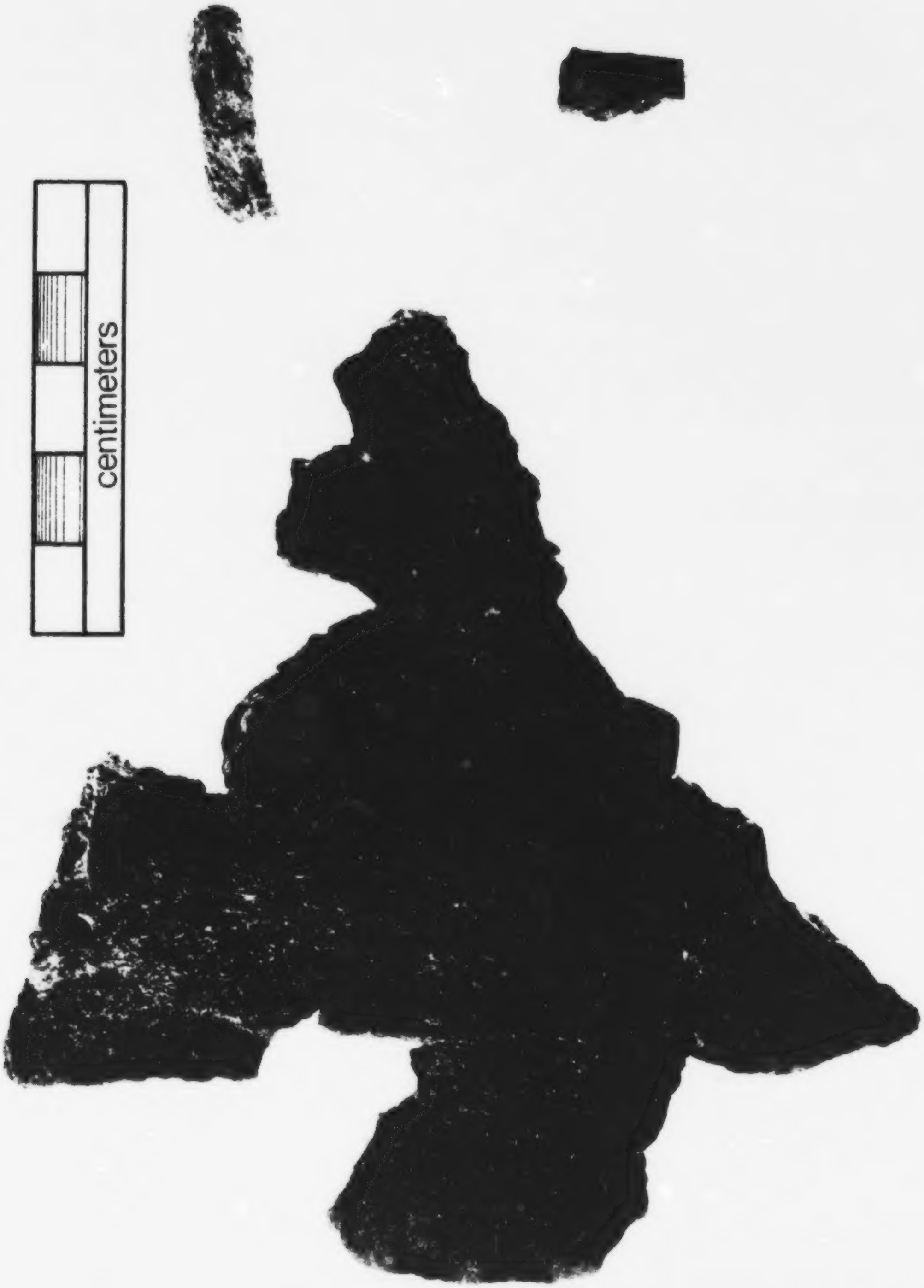

centimeters

PLATE 20 Two rim sherds and reconstructed body section of the Laurel vessel from Area 11

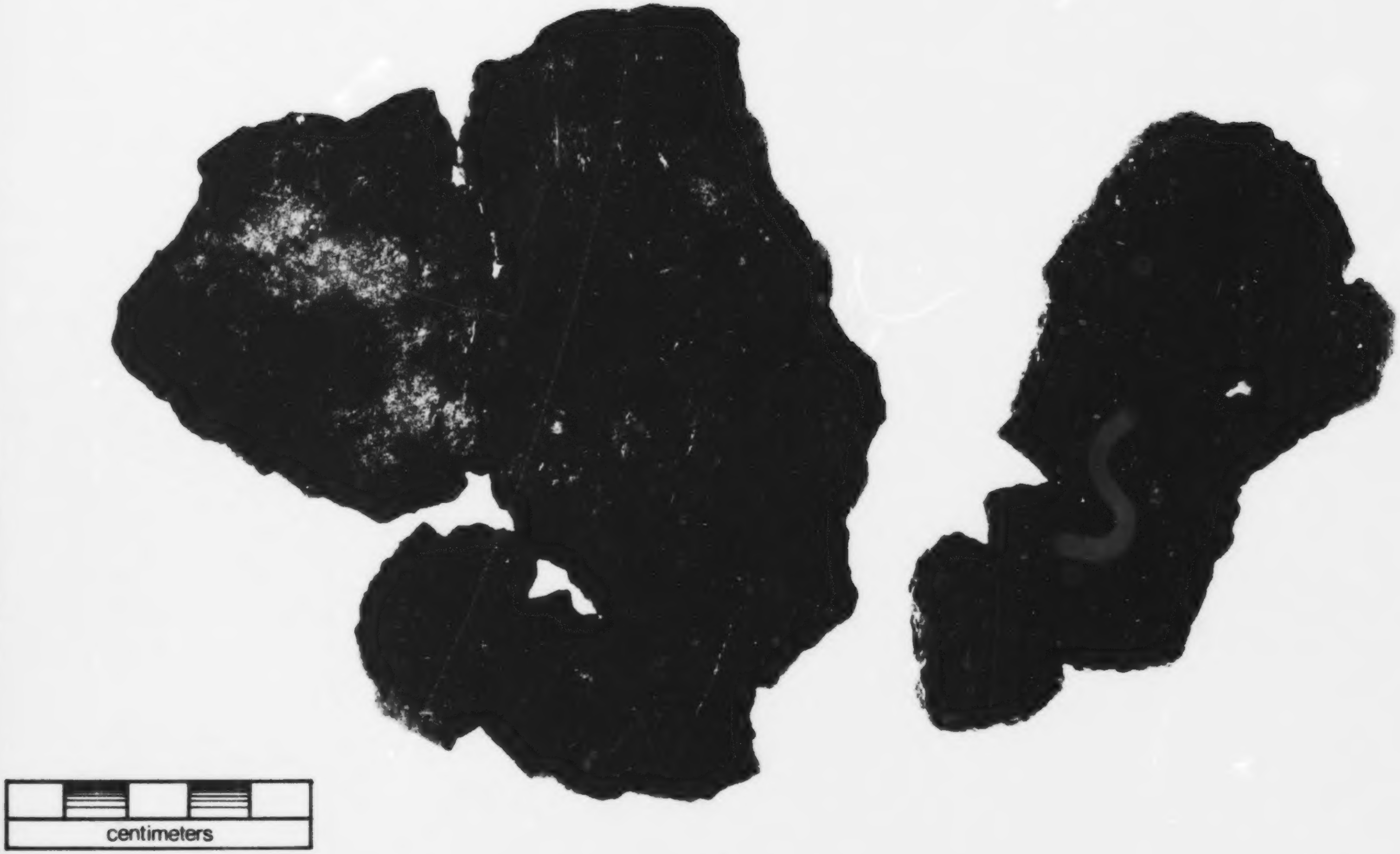

centimeters

PLATE 21 Reconstructed basal sections of the Laurel vessel from Area 11. Note thickened, pointed basal areas

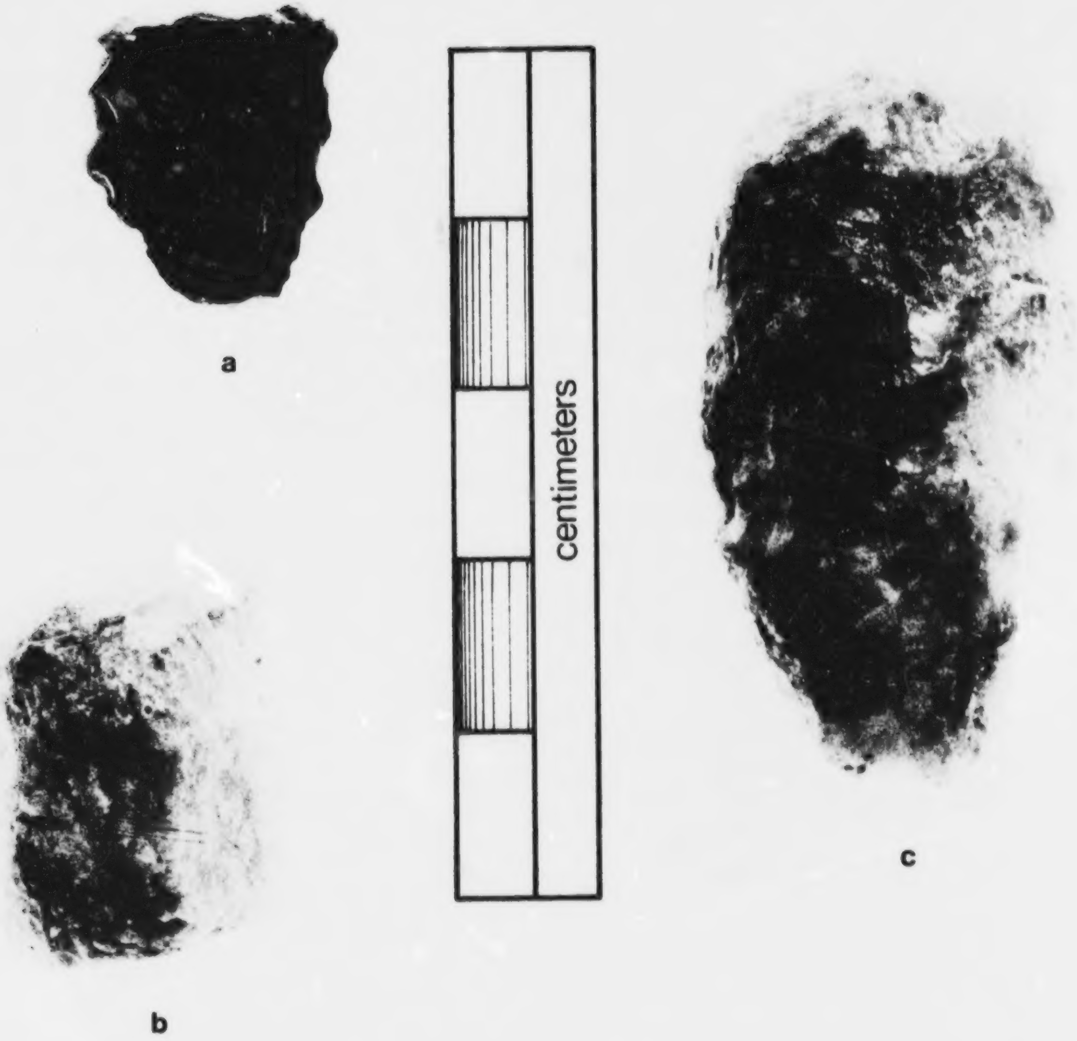
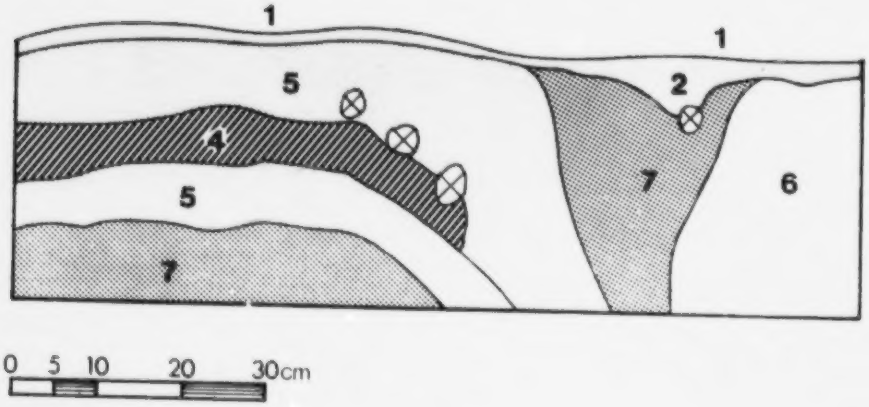

a
centimeters
b
c

PLATE 22 Lithic tools from Area 11

Unit 12N 25E unifaces a) 8-729 of Knife River Flint
c) 8-692

Unit 12N 24E uniface b) 35-5


1
1
5
2
4
7
5
6
7
0 5 10 20 30cm

1	surface litter (LFH)
2	black sand (Ah)
4	hearth (charcoal, ash, grey sand)
5	red sand (Bf)
6	light brown sand (A/B)
7	red sand & gravel (B/C)
⊗	tree roots

Fig. 36 Hearth in East Wall profile of Unit 12N 24E.

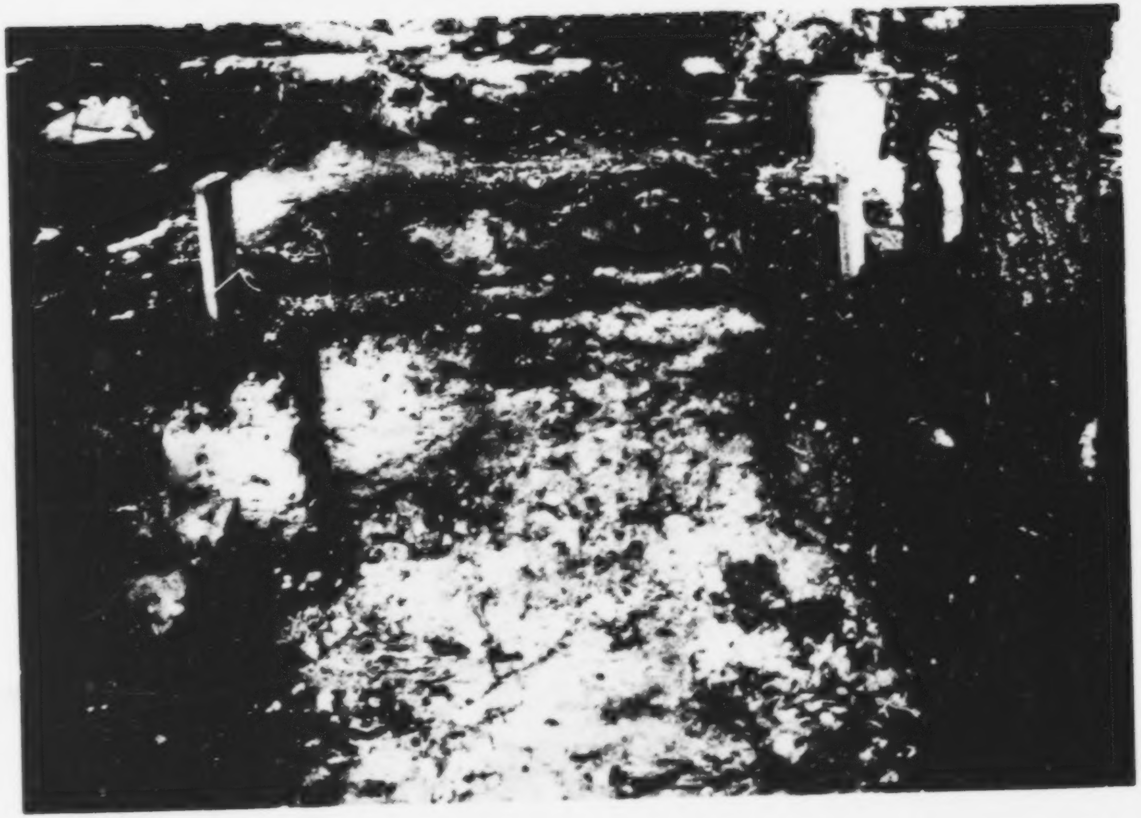


PLATE 23 Hearth feature from Area 11 - West wall, Unit 12N 25E. Hearth shows as black patch of charcoal in upper mid-section of the wall.

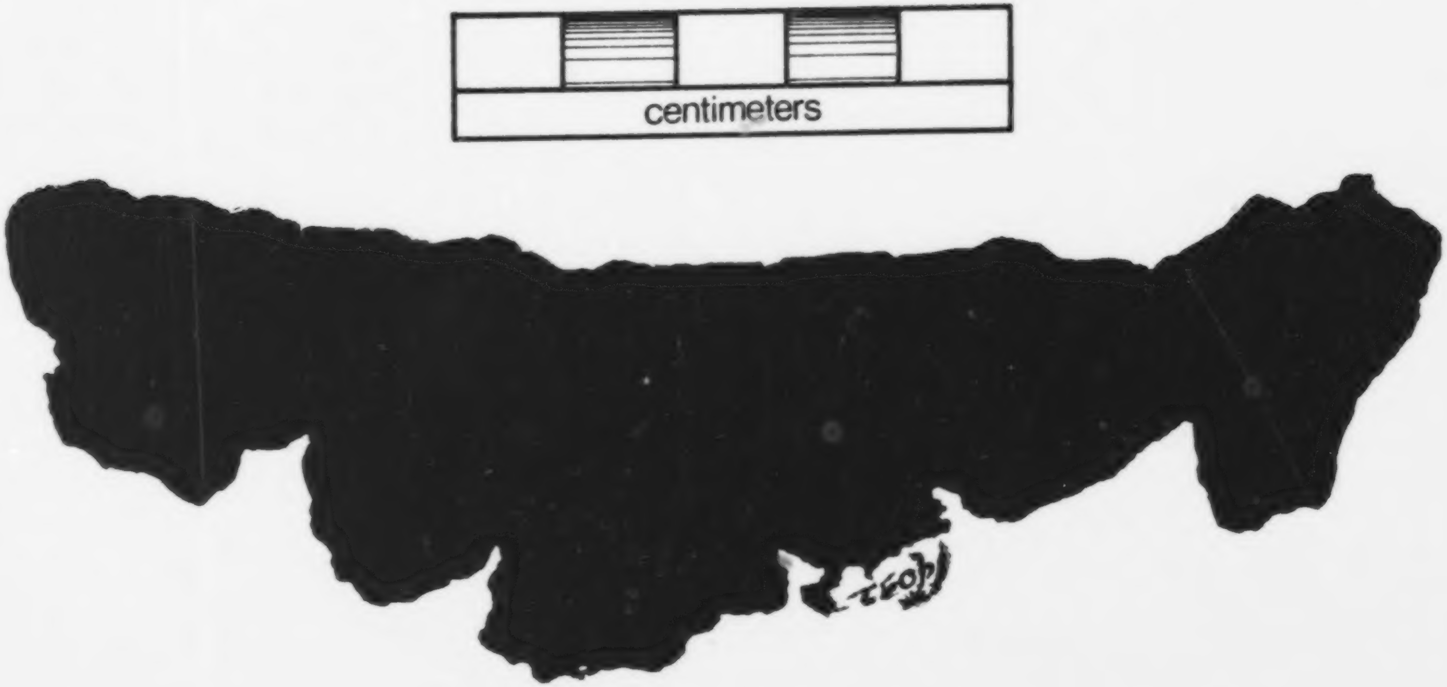

centimeters

PLATE 24 Duck Bay punctate rim section from Area 11.

(Badertscher: In Press) from vessels recovered at FbMb-1 in 1976 and 1977. These sherds were confined to the two most northeasterly units and recovered from either the base of the Ah horizon (black sand) or within the Ae horizon (grey sand). The Duck Bay Punctate sherds were intermingled with a few Laurel sherds in these two units, but this occurrence was not unexpected considering the number of tree roots throughout those units. Also found within 13N 25E and associated with the Duck Bay Punctate vessel was one small blue seed bead, of a type commonly used during the historic fur trade period (Plate 25).

Only three units of the eight held any faunal material. In 13N 25E and 13N 26E, many small fragments of burned mammal bone were recovered, along with broken pieces of tooth and a portion of antler; the latter was not inconsistent in size with that of elk. One piece of burned bone was retrieved from 12N 26E, completing the faunal inventory for the entire eight units. Many small fragments of charcoal were located in the Ah horizon of 13N 25E and 13N 26E; whether they were connected with the burned bone or the 1885 forest fire is, unfortunately, an unanswerable question. Equally interesting in Area 11 was the relative absence of lithic debris compared to other areas, especially considering the amount of pottery recovered. Only 12N 25E contained more than a few flakes (Table 22). Another oddity was the high percentage of chert (23%) among the lithic raw materials utilized (Table 23).

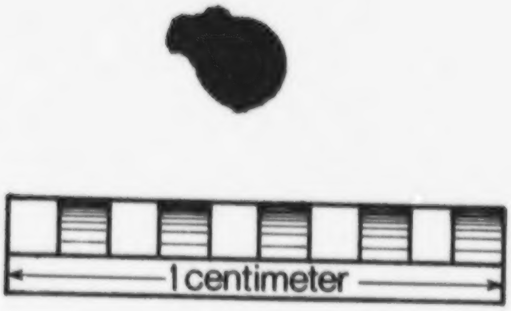

1 centimeter

PLATE 25 Seed bead from Area 11. Note rootlet growing through the centre of the bead.

TABLE 22

Classification of Lithic Debris from Area 11

DEBRIS CLASS	11N 25E	11N 26E	12N 24E	12N 25E	12N 26E	13N 24E	13N 25E	13N 26E
Product Group II								
IPF with Cortex	1	0	0	0	0	1	2	0
IPF without Cortex	0	0	0	2	1	2	1	0
SF with Cortex	0	0	0	2	0	0	3	0
SF without Cortex	1	1	1	6	1	1	0	0
SB with Cortex	0	1	1	35	2	9	2	1
SB without Cortex	1	1	2	8	0	2	0	0
Product Group IV								
Uniface Reduction Flake	0	0	0	0	0	0	0	1
TOTALS	3	3	4	53	4	15	8	2

TABLE 23

Distribution of Lithic Raw Materials in Area 11

UNIT	CHERT	KNIFE RIVER FLINT	SANDSTONE	SCHIST	SWAN RIVER CHERT	TOTALS
11N 25E						
Tools	0	0	0	0	0	0
PG II	0	0	0	0	3	3
PG IV	0	0	0	0	0	0
11N 26E						
Tools	0	0	0	0	0	0
PG II	0	0	0	0	3	3
PG IV	0	0	0	0	0	0
12N 24E						
Tools	0	0	0	0	1	1
PG II	1	0	0	0	3	4
PG IV	0	0	0	0	0	0
12N 25E						
Tools	0	1	0	0	1	2
PG II	7	0	1	1	44	53
PG IV	0	0	0	0	0	0
12N 26E						
Tools	0	0	0	0	0	0
PG II	0	0	0	0	4	4
PG IV	0	0	0	0	0	0
13N 24E						
Tools	0	0	0	0	0	0
PG II	11	0	0	0	4	15
PG IV	0	0	0	0	0	0
13N 25E						
Tools	0	0	0	0	0	0
PG II	3	0	0	0	5	8
PG IV	0	0	0	0	0	0
13N 26E						
Tools	0	0	0	0	0	0
PG II	0	0	0	0	1	1
PG IV	0	0	0	0	1	1
TOTALS	22	1	1	1	70	95

Activity Centre F

It is apparent that the activity centre located in Area 11 consists of two components, one associated with the Laurel vessel and the other with the Duck Bay Punctate pot. Although a certain amount of intermixing of artifacts had occurred, it is possible to differentiate the two components with some degree of confidence. From Figure 35, one can see that only two units contained both types of pottery. The hearth, positioned mainly in the Ae (grey sand), and Bf (red sand) horizons in the five units at the 11N and 12N latitude contained all of the stone tools and most of the Laurel potsherds. Although a few Laurel rimsherds and one very large basal sherd were found in the Ae horizon, which dipped quite low in the southeastern corner of 12N 26E, most Laurel sherds were clustered in Unit 12N 25E.

Despite the large number of Laurel sherds unearthed, it must be remembered that only one vessel is involved here. The amount and types of Laurel-associated remains, one cooking vessel and three unifacially worked scrapers, indicate at the most a very small family group camping on the spot, possibly overnight. One advantage to a location behind the ridge would be protection from the prevailing northwest winds, which can be quite brutal. The crew's experience with living in tents on the ridge during the spring months indicates that overnight camps would likely be placed behind the ridge, where natural shelter was readily available. An exception to this generalization would occur during times when insect populations were at a maximum; then a camp location on the exposed, wind-swept ridge would be advantageous.

Utilizing Stoltman's typology for Laurel ceramics (1973), the vessel recovered at Childs Lake would be considered an example of the type "Laurel Plain". Stoltman considers that

> ... it would be a reasonable interpretation of these data that totally plain rim sherds were generally more important in early-Laurel, and that after a possible peak in middle-Laurel times, they declined in relative popularity. In short, the residual plain category seems to be a reasonably sensitive temporal indicator within the Laurel culture of northern Minnesota. ... (1973: 88).

In Manitoba, Laurel Plain rims constituted virtually the same percentage of recoveries at the Tailrace Bay Site (Mayer-Oakes 1970: 231) as at McKinstry Mound 1 in Minnesota.

> ... This percentage ... coupled with the high incidence of Laurel Pseudo-scallop Shell at Tailrace Bay, leads me to believe that allowing for regional variation, Tailrace Bay synchronizes best with the McKinstry mounds and the middle part of the Minnesota Laurel sequence (Stoltman 1973: 88).

Providing a chronological framework for the Laurel vessel is a hazardous undertaking, of course. Stoltman used a seriation technique to place the Minnesota Laurel types in chronological relationship with one another, bolstering his argument with carbon-14 dates from three Laurel sites in the Great Lakes area, including Heron Bay in Ontario (1973: 87). These dates, which range from A.D. 70 ± 280 (M-2073) on Summer Island to A.D. 790 ± 130 (GSC) at Heron Bay demonstrated that as site locations move northward, they became later in time. Stoltman's conclusions are not inconsistent with the findings of Wiersum and Tisdale for the Rat-Burntwood drainage system in northern Manitoba, where Laurel dates were so late that they overlapped with those of early Blackduck (1977: 6). Table 24 lists carbon-14 dates on Laurel materials from some sites in northwestern Manitoba.

TABLE 24

Laurel Carbon-14 Dates from Northwestern Manitoba[1]

LAB NUMBER	SITE	AGE[2]
A-1294	The Pas	10 ± 270 B.C.
S-956	Wapisu (UNR 26)	30 ± 85 A.D.
Gak-6067	Kame Hills	60 ± 90 A.D.
A-1424	The Pas	190 ± 200 A.D.
A-1368	The Pas	240 ± 80 A.D.
S-959	Wapisu	305 ± 195 A.D.
Gak-6063	Kame Hills	660 ± 160 A.D.
S-746	Notigi (UNR 23)	750 ± 130 A.D.
S-1079	Oscar Point (PAH 5)	815 ± 65 A.D.
S-744	Notigi (UNR 23)	1030 ± 150 A.D.

[1] Adapted from Wiersum and Tisdale 1977: 158.

[2] Ages are calculated by subtracting 1950 from the absolute dates.

These dates fall comfortably within the time frame of Initial Woodland in Manitoba and this designation will have to be sufficient for the Laurel vessel at Childs Lake.

The Duck Bay component of Activity Centre F in Area 11 is expressed in two of the eight units, 13N 25E and 13N 26E. Here is found the Duck Bay Punctate rim section, partially reconstructed, in association with burned mammal bone, antler (probably elk) and a single blue trade bead. Because no other bone was found in Area 11, it is not inappropriate to assert its affiliation with the Duck Bay Punctate vessel. Few Laurel sherds were recovered in these two units and they appear to have been pushed up from beneath by root action. All of the Duck Bay Punctate sherds were located in the uppermost soil horizons (Ah, Ae), while many of the Laurel sherds were found in the lower red sand horizon (Bf). It seems likely in this instance that the Laurel sherds are intrusive, rather than vice versa.

Again, a temporary camping situation is indicated, although the burned bone could have resulted from forest fire rather than cultural activities. The time frame for this component is problematical. It is difficult to accept even the later two of the four Duck Bay dates (A.D. 1255 ± 175 and A.D. 1180 ± 110) as applicable to a vessel associated with trade goods. Several explanations could apply here. The 1977 Duck Bay carbon-14 assays do not date Duck Bay pottery directly; there were no carbon samples of sufficient size directly associated with these pottery types, but there is a sizeable Blackduck component at the site for which these dates would not be inappropriate. Further, a small bead was also found at Duck Bay, as was a metal button dating between 1750 and 1812 (Snortland-Coles 1979: 76). Also, Ray (1974: 51-71) documents the movement of trade goods west from Lake Superior and Hudson Bay far in advance of actual European traders through the vehicle of Indian middlemen. It is probable that the Duck Bay Punctate vessel and trade bead relate to the late 17th century or early 18th century, at the close of the Terminal Woodland period when European trade goods became more and more accessible in western Canada.

Area 12

The two units excavated in Area 12, 20N 63E and 20N 64E, were initially enigmatic. Lying within Grid XIV, they had been selected for excavation on the basis of Gibson's magnetic survey, but were not actually excavated until after Gibson had left the site. As indicated by their eastern coordinates, these two units were positioned on the east side of the swampy area in relatively dense mixed woods (see Figures 17 and 18). Absolutely no artifacts occurred in either unit and it was not until Winnipeg potter Vera Slobodian visited the site that the reason for this area's selection by the magnetic survey became apparent.

Figure 37 illustrates the east wall profile of Unit 20N 64E where, at a depth of 35 cm DBS, a horizon of sandy clay was reached. The two units in Area 12 were the first on the site in which a clay horizon was discovered; the proton magnetometer had reacted to the presence of clay near the surface of the earth. Incidentally, these two units were also the first in which the soil profile could be classified unreservedly as a Luvisol.

Mrs. Slobodian showed quite an interest in this clay source, taking a smaple of it back to Winnipeg for testing. She fashioned a "Laurel" type vessel from it (Plate 26), tempering the clay with burned bone and building the pot by coiling and paddling techniques in a Laurel fashion. The pot was kiln fired, cracking slightly in the process. However, Mrs. Slobodian felt that the clay would have been adequate for prehistoric potters, considering that they probably did

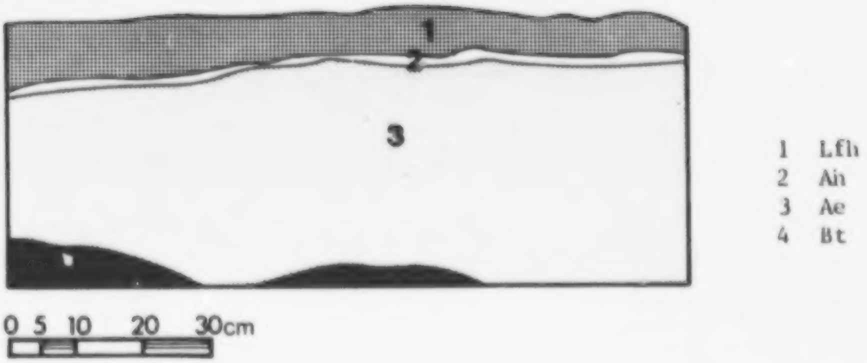

1
2
3
1 Lfh
2 Ah
3 Ae
4 Bt
0 5 10 20 30cm

Fig. 37 East Wall profile of Unit 20N 64E in Area 12. The Bt horizon is the "sandy clay" referred to in the text.

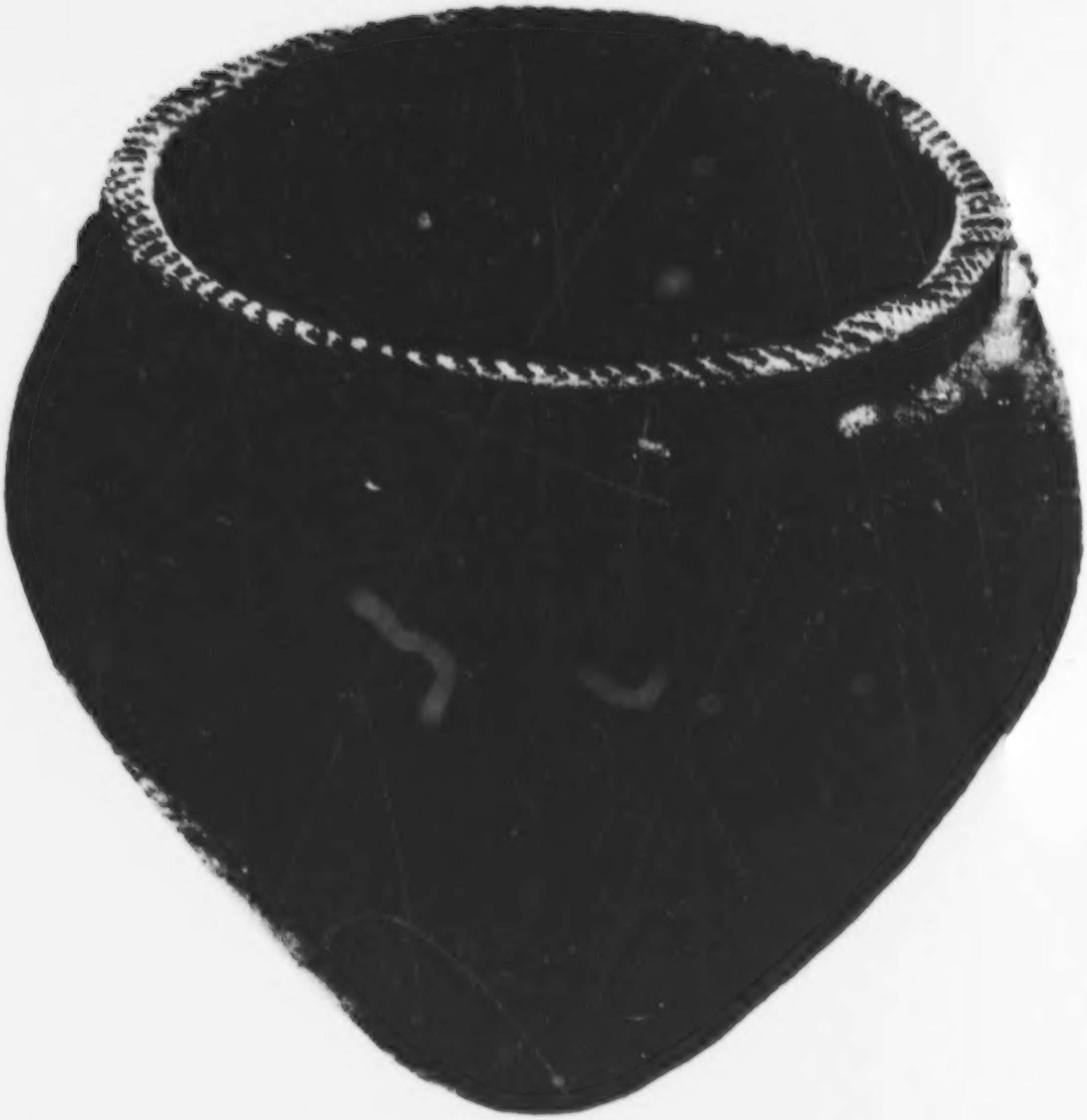


PLATE 26 "Laurel" vessel fashioned of clay from Area 12 by Vera Slobodian not achieve such high temperatures outdoors as contemporary potters do with kilns. It is possible that some of the vessels found at Childs Lake were manufactured from this local clay source; it was exposed right at the surface in several places throughout the cottage lot area (Hayward 1944: 1).

Area 13

The units comprising Area 13 (1S 19E, 0N 25E, 5N 22E, 3N 18E, 3N 19E, and 4N 19E) fit within Grid II, with the exception of 1S 19E, which fell outside the grid system entirely (Figures 17, 18 and 38). This unit, the last to be excavated during the field season, was put in its location because the general area had been productive and that specific spot was relatively flat and uncluttered with trees. As suspected from the early surface investigation of the site, cultural material does extend south of the 0N baseline. Unit 1S 19E proved to be fairly productive, and a 50-cm extension was added to it in order to recover additional material embedded in its west wall.

Area 13 was also positioned on the back side of the ridge; its units measured approximately 1 m lower in elevation than those on the crest of the ridge, with the exception of 0N 25E which was 2 m lower and quite close to the southern end of the swampy area. Mixed woods predominated throughout Area 13, but the trees were not so closely spaced as to inhibit walking. A trail was quickly worn from the foot path on the ridge eastward to Area 13, on past the end of the swamp, and further until it intersected with the cottage access road.

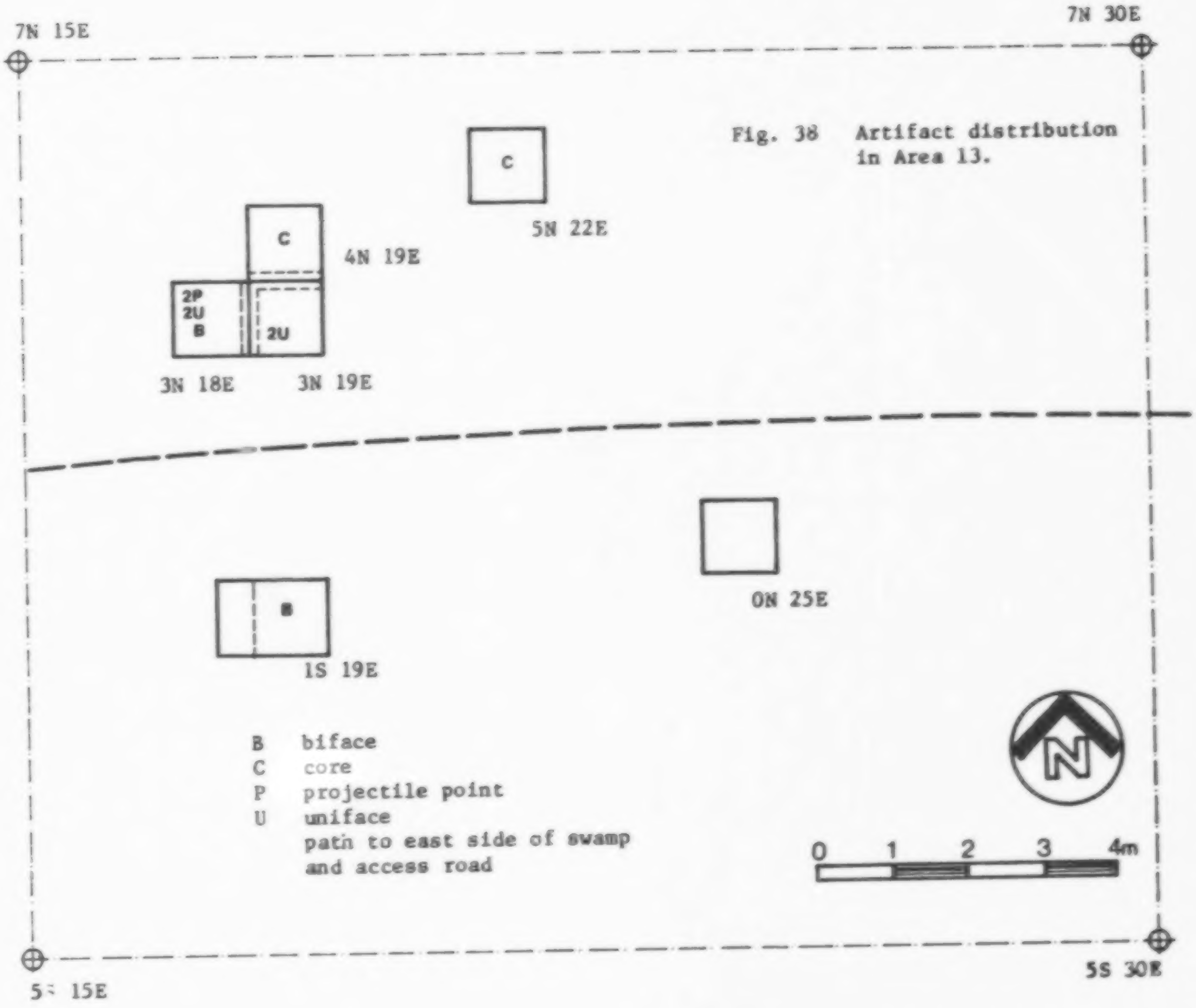


Fig. 38 Artifact distribution in Area 13.

7N 15E
7N 30E
C
5N 22E
C
4N 19E
2P
2U
B
2U
3N 18E
3N 19E
0N 25E
B
1S 19E
B biface
C core
P projectile point
U uniface
path to east side of swamp and access road
N
0
1
2
3
4m
5S 15E
5S 30E

Artifact recoveries from this area, particularly lithic materials, were numerous; only ON 25E contained no cultural materials. Unit 1S 19E held a biface, 5N 22E a core, and the three units grouped together (3N 18E, 3N 19E and 4N 19E) a core, a biface, four unifaces and two projectile points (Plates 27, 28 and 29). These three latter units were obviously the locus of stone tool manufacturing, as is demonstrated by the amount and types of lithic debitage recovered from them (Table 25). Lithic raw material continued to be predominately Swan River Chert (87.29%), although chert tools and debris did constitute 11.38% of the lithic materials recovered (Table 26).

TABLE 25

Classification of Lithic Debris from Area 13

DEBRIS CLASS	1S 19E	3N 18E	3N 19E	4N 19E	5N 22E
Product Group II					
IPF with Cortex	2	11	8	8	1
IPF without Cortex	2	6	6	8	0
SF with Cortex	4	14	39	14	2
SF without Cortex	5	11	51	25	1
SB with Cortex	8	35	71	38	4
SB without Cortex	6	22	51	23	4
Product Group IV					
Uniface Reduction	0	1	28	5	0
Biface Reduction	0	4	23	7	0
Lipped Fragment with Cortex	0	0	5	8	0
Lipped Flake without Cortex	0	5	24	6	0
TOTALS	27	109	306	142	12

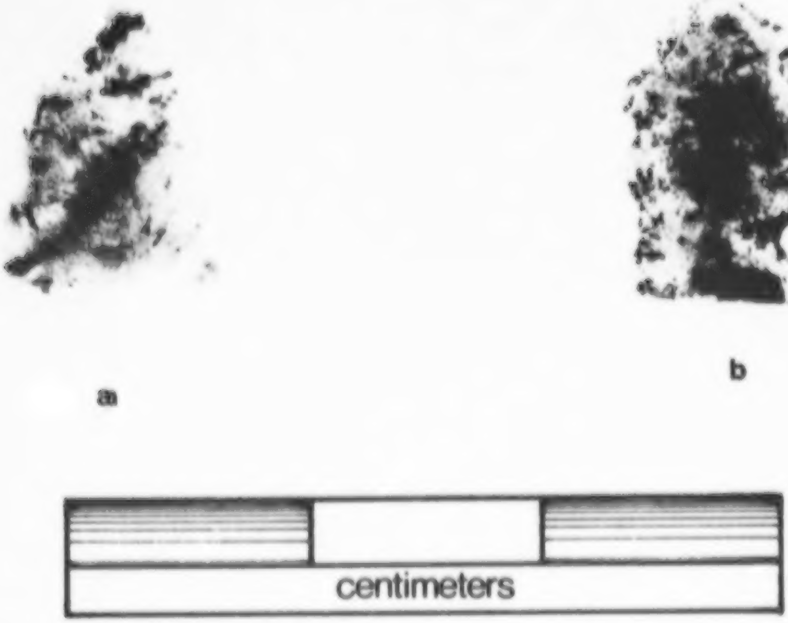

a
b
centimeters

PLATE 27 Projectile points from Area 13

Unit 3N 18E a) 6-52
b) 6-72

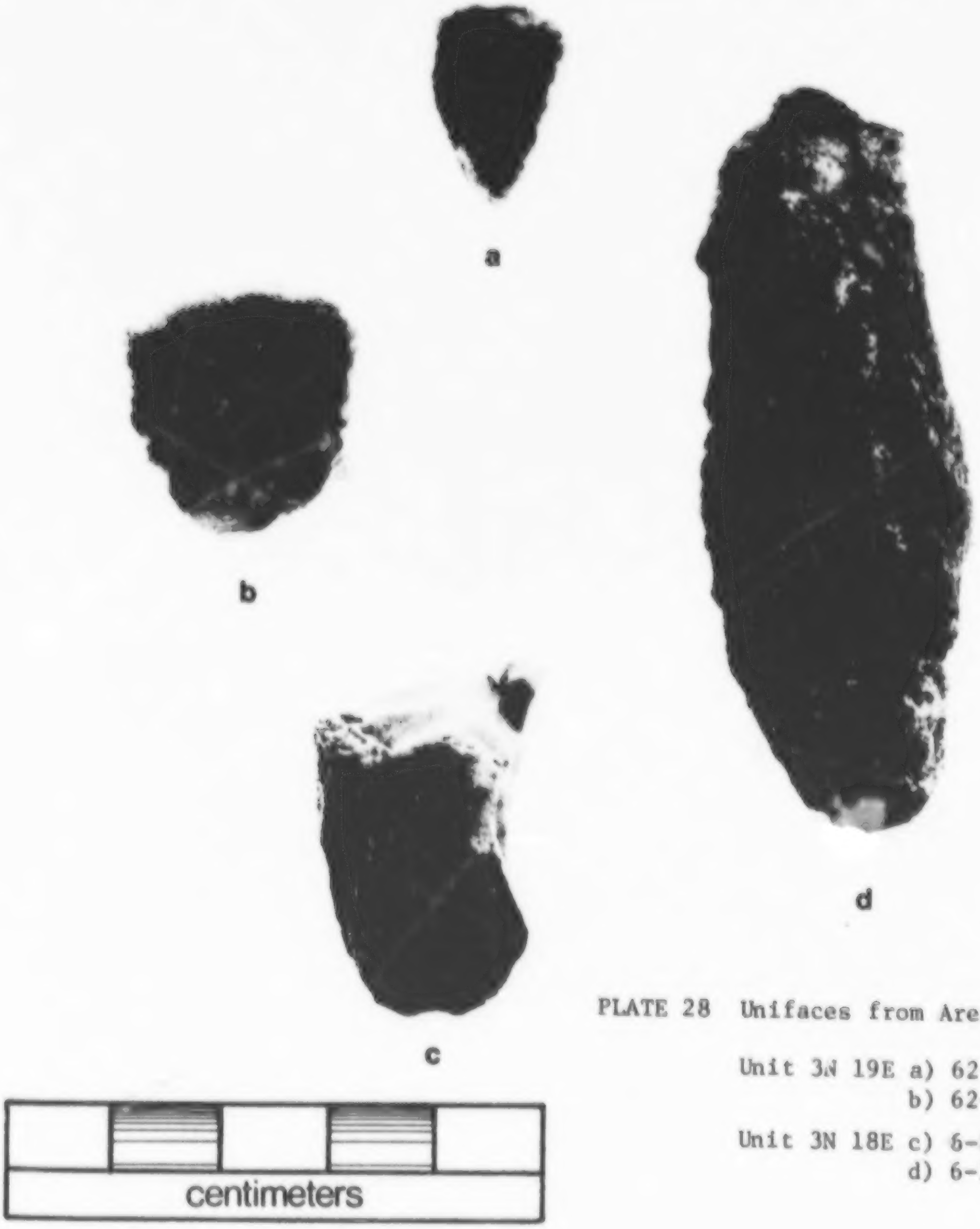

a
b
c
d
centimeters

PLATE 28 Unifaces from Area 13

Unit 3N 19E a) 62-149
b) 62-308

Unit 3N 18E c) 6-87
d) 6-106

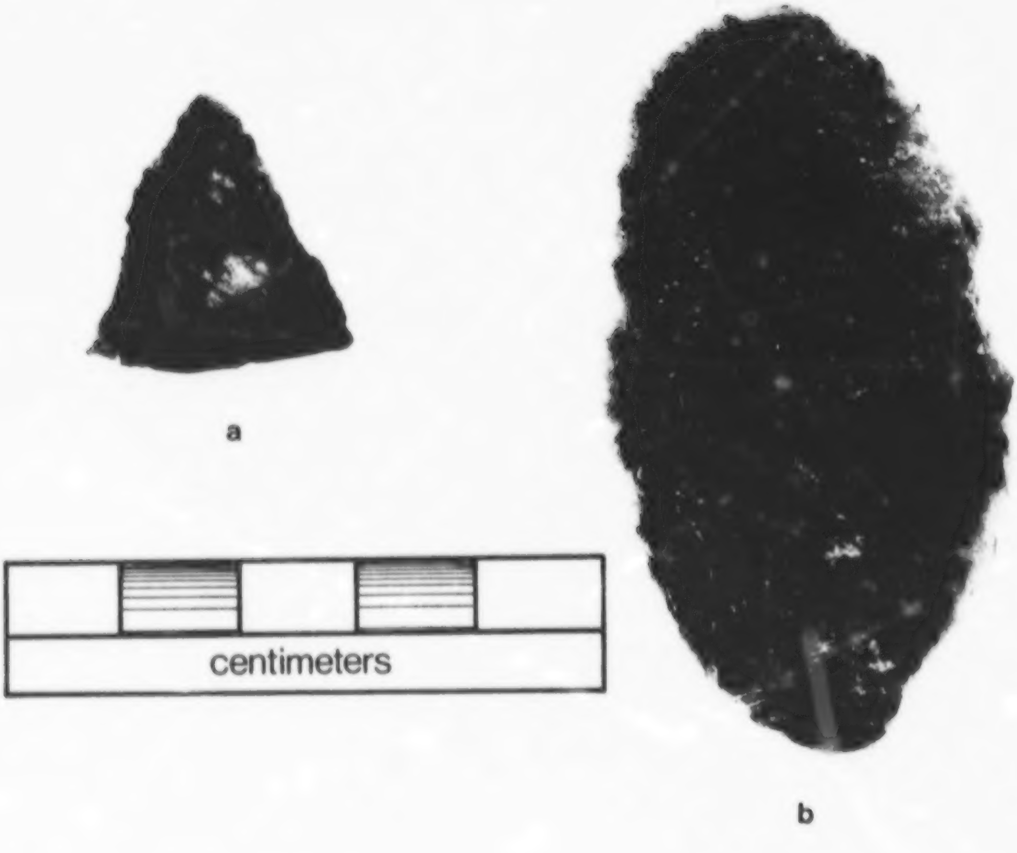

a
centimeters
b

PLATE 29 Bifaces from Area 13

Unit 3N 18E a) 6-92
Unit 1S 19E b) 65-1

TABLE 26

Distribution of Lithic Raw Materials in Area 13

UNIT	CHERT	SANDSTONE	SCHIST	SWAN RIVER CHERT	TALC	TOTALS
1S 19E						
Tools	0	0	0	1	0	1
PG II	17	0	0	10	0	27
PG IV	0	0	0	0	0	0
3N 18E						
Tools	0	0	0	5	0	5
PG II	22	0	2	74	1	99
PG IV	0	0	0	10	0	10
3N 19E						
Tools	1	0	0	1	0	2
PG II	21	2	0	203	0	226
PG IV	2	0	0	78	0	80
4N 19E						
Tools	0	0	0	1	0	1
PG II	5	2	1	108	0	116
PG IV	0	0	0	26	0	26
5N 22E						
Tools	0	0	0	1	0	1
PG II	1	0	0	11	0	12
PG IV	0	0	0	0	0	0
TOTALS	69	4	3	529	1	606

None of the units contained any ceramic materials and, as expected, faunal recoveries were scarce. Unit 1S 19E did contain many small pieces of burned mammal bone, but the cluster of three units held a total of only seven fragments, while 5N 22E had none. Interestingly, when Gibson surveyed Area 13 with the proton magnetometer, no anomalous readings were obtained. At the time, only 3N 18E was being excavated and, although it was a productive unit, further investigations confirmed that there were no hearths or pottery present.

Activity Centre G

With the exception of the sterile ON 25E, all of the units in Area 13 either contained, or could be considered part of, an activity centre. In addition to the biface and 27 flakes associated with it, 1S 19E also appears to have contained the remains of a small fire where meat was cooked. On Levels I and II, within the grey-brown sand (Ah horizon), over one hundred small pieces of burned mammal bone (likely a rib) were found intermingled with charred wood (Figure 39). These remains were found at the same depth as the lithic material and confined solely to the Ah horizon in the soil profile. Of course, the possibility that the burned bone and wood might have resulted from the 1885 forest fire must not be discounted; no definite interpretation is possible.

Activity Centre H

Unit 5N 22E produced only one core and twelve flakes, but five of these flakes had been struck from the core, which was recovered at a depth of 12 cm DBS. Here one finds an example of the most basic activity of the prehistoric hunter -- taking a core, striking flakes from it, and selecting those suitable for his purpose. Although Activity Centre H was the smallest discovered at Childs Lake, its interpretation can be made with more confidence than any of the other centres discussed previously.

Activity Centre I

Within the block of three units in Area 13 is abundant evidence of another activity centre. Between them, Units 3N 18E, 3N 19E and

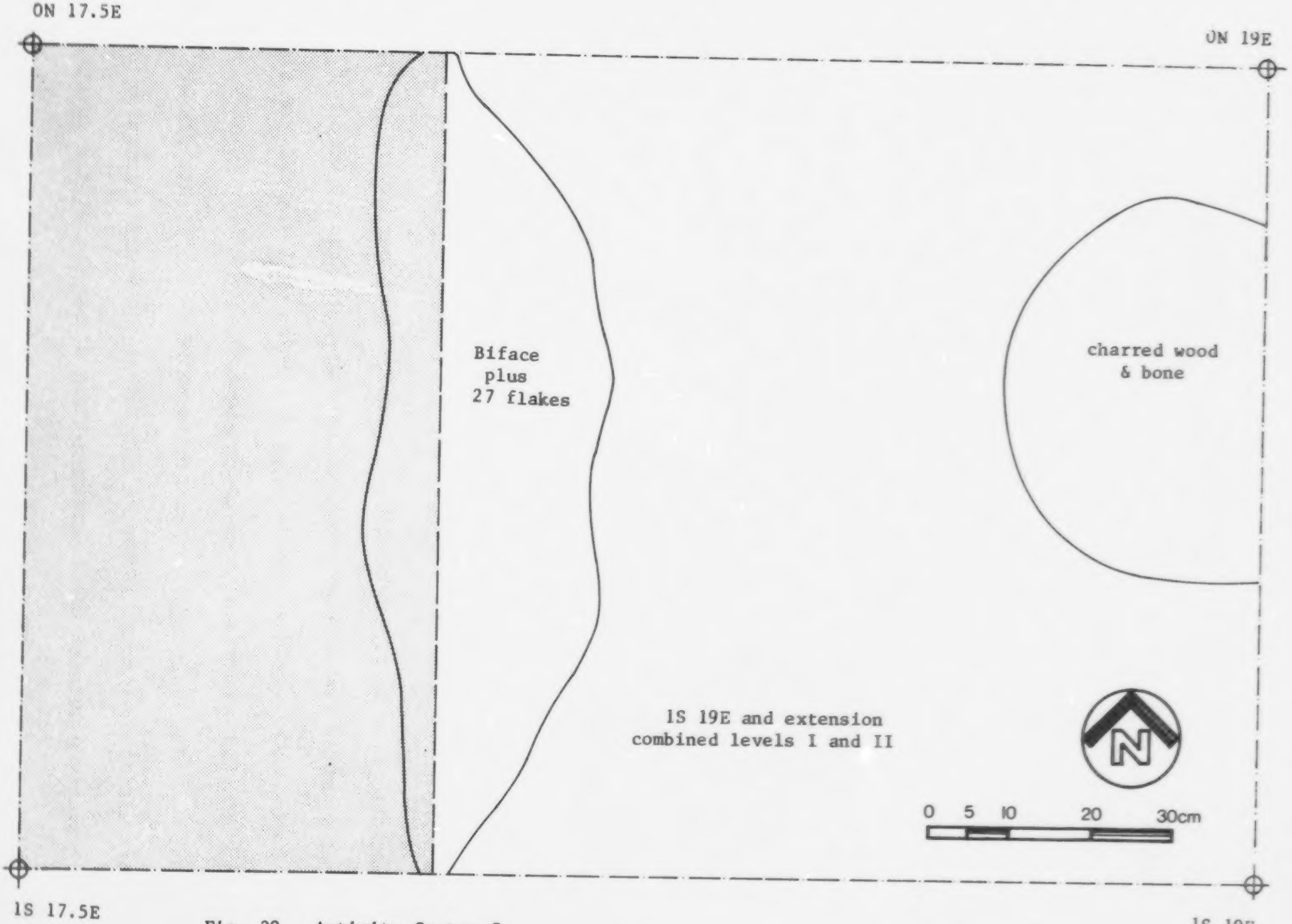

ON 17.5E
0N 19E
Biface
plus
27 flakes
charred wood
& bone
1S 19E and extension
combined levels I and II
N
0 5 10 20 30cm
1S 17.5E
1S 19E

Fig. 39 Activity Centre G.

4N 19E contained eight stone tools and some 557 flakes (Figure 40). No pattern in the distribution of the flakes could be discerned, other than that they generally occurred in areas adjacent to the balks in the three units, just as the tools also clustered there. In contrast to most other units on the site, artifacts were found quite deep below the soil surface (20 cm DBS; 22 cm DBS). Nevertheless in all instances, tools and flakes were associated with either the Ah or Ae soil horizon. At this particular location on the site, the Ae horizon was especially thick -- as much as 30 cm in 3N 18E (see Figure 41).

The type and quantity of flakes recovered, as well as the tools themselves, indicate that all of the stages of tool manufacture were carried on at this locale (see Table 25). Faunal remains were disappointingly small in all of Area 13, as well as Activity Centre I specifically, leading one to conclude, once again, that artifact deposition does not indicate a chronologically long period of time. Flotation activities did not produce any unambiguous floral material either. In the upper levels of all units, in either the Ah or Ae horizons, contamination by living plants was a continuing problem. The lower soil horizons, however, did not contain artifacts or, if they did, held no floral specimens. Likely the sandy nature of the soil promoted the downward movement of such ecofacts, if they had indeed existed, as the site is generally quite well drained and most soil samples were devoid of plant remains.

The two projectile points found in 3N 18E (Plate 27) are interesting specimens. Examples similar to the small triangular un-notched point are found throughout the midsection of the continent

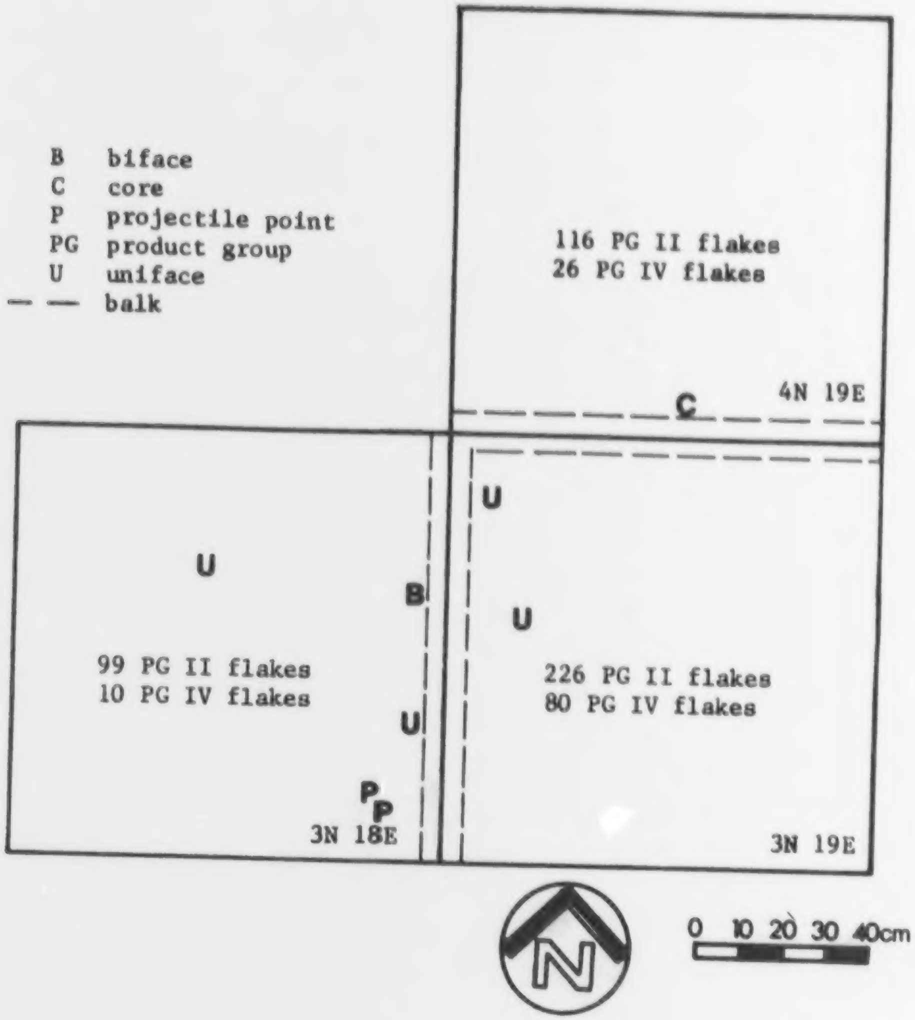
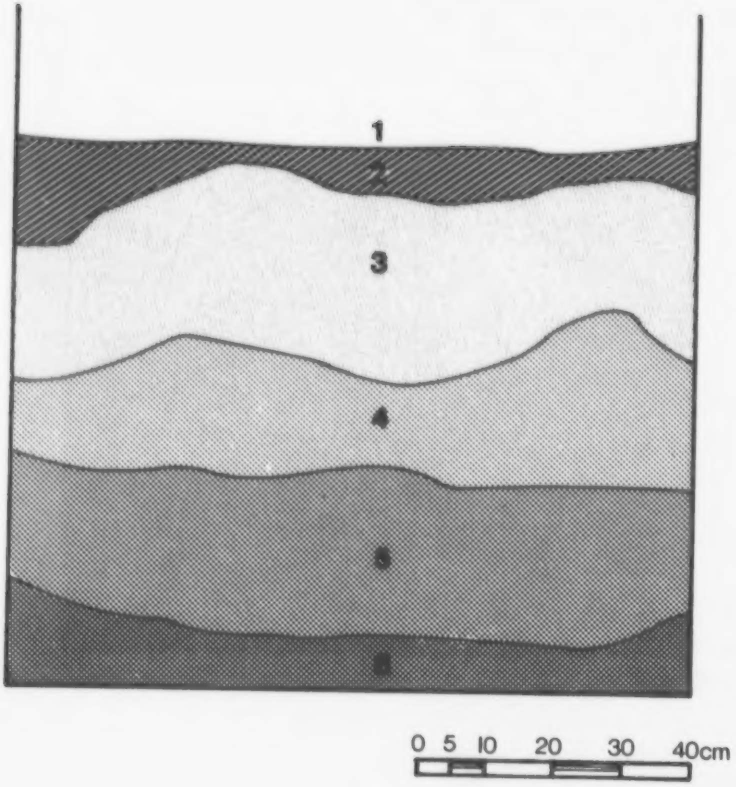

B biface
C core
P projectile point
PG product group
U uniface
— — balk
116 PG II flakes
26 PG IV flakes
C
4N 19E
U
B
U
99 PG II flakes
10 PG IV flakes
U
P
P
3N 18E
U
226 PG II flakes
80 PG IV flakes
3N 19E
N
0 10 20 30 40cm

Fig. 40 Location of artifacts in Activity Centre I.


1
2
3
4
5
6
0 5 10 20 30 40cm

1 LFH surface litter
2 Ah dark brown sand
3 Ae light brown sand
4 A/B brown sand & gravel
5 Bfk yellow-brown sand & gravel
6 B/C grey sand

Fig. 41 East Wall profile of Unit 3N 18E in Activity Centre I.

and known variously as "Eastern Triangular" or "Plains Triangular", depending on their location and the geographical orientation of the researcher reporting on them. Perhaps most interesting is the small, double-notched specimen. A point exactly like it was surface-collected years ago on the site by Nelson Cockerill of Roblin; it is now in the collection of Sheldon Jones, also of Roblin. Wettlaufer and Mayer-Oakes (1960: 32) report a similar point from the Long Creek Site in south-eastern Saskatchewan, which they classify as "Hidatsa-Fall River", primarily on the basis of associated pottery styles. Stoltman (1973: 97) also discusses such a point from the Pike Bay Mound in northern Minnesota. It would be classified as early Initial Woodland in Manitoba, while the Saskatchewan specimen would be termed late Terminal Woodland. Obviously with such a time span indicated, no definitive statement can be made about the date of this activity centre. Interestingly, however, Wettlaufer and Mayer-Oakes consider the Hidatsa to have originated in northern Minnesota (1960: 105-107).

Test Pits

Because time constraints did not permit as much excavation as desired, 50 cm shovel test pits were dug in grids where little or no excavation had occurred (Figure 18). A total of 73 pits were dug in Grids XIV, XV, XVI, XVII, XX, XXIII and XXIV. Of these 73 test excavations, only four produced any material, as follows:

TABLE 27

Recoveries from Test Pits

50N 55E (Test Pit 14)	1 flake; 9 pieces burned mammal bone
50N 85E (Test Pit 23)	1 core; 14 flakes
70N 55E (Test Pit 38)	1 fish bone; 1 large mammal rib (sawn)
65N 65E (Test Pit 46)	1 flake

Results

In attempting to summarize, and draw conclusions from, the 1981 excavations at EjMg-2, it would be pertinent to refer to those questions and objectives that were raised at the beginning of this chapter.

To Determine Site Parameters: This objective met with limited success due to logistical restrictions. Although artifacts were surface-collected well south of the Parks cabin in the last two cottage lots, it was not possible to investigate these locations thoroughly to determine the nature of the occupation there. Conversely, no expansion of Parks facilities or activities were planned for the area north of Hickey Creek, so excavation there could not be justified. On the east, it would seem from the testing program that the site limits had probably been reached. Occupation ended on the eastern downslope of the ridge, except possibly along the foot path leading from the dock, where a test pit at 50N 85E contained a core and associated debris.

To Salvage Information and Artifacts: This objective seems quite well satisfied. Through a combination of random sampling in relatively undisturbed parts of the site, surface collecting, magneti surveying and test pitting, the primary impact area was covered adequately. Sixty 1 x 1 m units were excavated for an areal total of 3600 m^2; as well, test pits were dug and flotation samples processed in the lake for several of the larger activity areas.

To Determine the Number of Components at Childs Lake: On the basis of pottery and projectile point styles, two prehistoric cultural components can be identified at EjMg-2: Initial Woodland and Terminal Woodland. Initial Woodland is represented by the Laurel vessel and three associated unifaces, one of which is made of Knife River Flint from Area 11. Dates for Initial Woodland in Manitoba range from A.D. 100-1100, with the older dates persisting north and east of Laurel's centre in the western Great Lakes region.

Depending on one's inclinations, the large dart, spear or atlatl Besant point found in Unit 64N 33E within Area 4 could be considered either a late Archaic manifestation or additional evidence for an Initial Woodland presence at EjMg-2. The point most closely resembles those termed Besant on the northern Plains and found, at least occasionally, with cord marked pottery (Joyes 1970; Reeves 1970). In addition to the debatable status of Besant in general, however, this particular point was recovered in a disturbed context, so that little can be said with any certainty about it. Archaic materials have been found elsewhere on Duck Mountain (Hanna 1973; Carmichael 1980), so they were not unexpected at Childs Lake. Nonetheless, because of contextual difficulties, it is not possible to place much emphasis upon the presence of this point at Childs Lake.

Much more evidence is available, however, for the presence of a Terminal Woodland component at Childs Lake. Areas 6 and 7 contained small side-notched projectile points in association with fabric-impressed pottery, while Area 11 held a Terminal Woodland vessel and a small trade bead. Additionally, two small projectile points and several unifaces, plus chipping debris, were clustered together in Area 13. Terminal Woodland overlaps Initial Woodland both spatially and chronologically, ranging from A.D. 700-1700. Although the presence of a trade bead probably indicates contact with European traders, it does not necessarily imply European traders in west-central Manitoba or even, for that matter, personal contact between Native and trader. Trade goods moved west across the North American continent far in advance of the traders themselves by way of Native middlemen (Ray 1974).

A twentieth century component is also present at EjMg-2 in the form of metal goods, china wear, food and drink containers, and other historic artifacts, but these are outside the scope of the current research.

To Determine the Size of Groups Occupying Childs Lake and Their Length of Stay: Carmichael phrased this line of investigation succinctly:

> As with other large sites on Duck Mountain, it remains to be determined whether the accumulated cultural debris is the result of small groups of

> people continually returning to the site over a long period of time, or a larger group occupying it over a relatively short period (1980: 14).

On the basis of surface collections, a few test pits and one strat pit, Carmichael favoured the latter interpretation -- a large group occupying the site for a short period of time. Perhaps the only way to answer this question with certainty would be to excavate the entire site, which is, obviously, an impossibility.

From the more intensive investigations of 1981, however, it does not appear that Carmichael's interpretation is correct. Except for a few small loci where flakes were abundant (Activity Centres C and I), or pottery thickly distributed (Activity Centre F), the site was not particularly productive. Furthermore, in these activity centres, the artifacts recovered indicate only small groups of people at the most, e.g., 800+ potsherds in Area 11 equal only one small cooking vessel. Unfortunately the scarcity of diagnostic lithic and ceramic materials, plus the obviously disturbed nature of much of the terrain, make it difficult to interpret socially or chronologically the bulk of materials from EjMg-2. Nevertheless, between the surface collections and excavations, it appears safe to state that those remains found adjacent to the Parks buildings and as far south as the 50N line represent only the briefest of occupations at the site. No pottery, for instance, has ever been found in this section, although other materials are eroding freely from the soil surface. Directly opposite the dock, on the west side of Childs Lake, is the entrance to a small creek which flows into the East Branch of the Shell River. Behind and to the east of the site is an old trail which runs the length of Childs Lake, swinging west to intercept another tributary of the Shell River at the lake's northern end. With its good beach and ready supply of lithic materials, EjMg-2 is a logical stopping place for people crossing the lake in an east-west direction, or for those going north and south by way of the lake or the trail.

South of the 50N line, one finds the greatest concentration of artifacts, plus indicators of larger (small family) groups of people, e.g., pottery, women's scraping tools, etc. Activity centres located east of the ridge appear deliberately placed to take advantage of the shelter afforded by the 2-m drop in elevation and have definite implications for season of occupation. However, these activity centres are still not very extensive and mark, perhaps, overnight camps of small family groups. If camping overnight, it would seem logical to take shelter away from the main thoroughfares of the site, the trails east from the beach and south along the ridge.

To Determine Social Organization with the Creek as a Natural Intrasite Boundary: Because the area north of the creek was not affected by proposed Park development, no work was attempted there. All other survey data, however, indicate distribution of cultural materials similar to that of the central portion of the site. Therefore, small family or hunting parties would be the most extensive groups expected, as elsewhere on the site.

To Determine Patterns of Resource Exploitation: The scarcity of faunal recoveries, as well as the absence of floral remains, further testify to occupations of short duration at EjMg-2. The little subsistence evidence available points to exploitation of large mammals; elk, moose and deer would likely have been present, although bone fragments are too small for precise identification. Elk-sized antler was recovered with the Duck Bay Punctate vessel in Area 11. As well, rabbit and fish bones were also found in various locations throughout the site.

To Determine Satellite Camps: A nearby site, EjMg-5, was found on Hickey Lake by several crew members who were exploring. Unfortunately, the site has been effectively destroyed by operations to obtain gravel for the dam that blocks the flow of Hickey Creek out of the lake's western end and into Childs Lake. EjMg-5 was located on the west shore of Hickey Lake, well sheltered from the prevailing northwest winds. It appeared a more likely location for a winter base camp than any other spot discovered along the eastern shore of Childs Lake. One Pelican Lake projectile point and assorted lithic debris were recovered in association with the remains of a hearth. Currently, little remains of the site; it should be considered irreparably destroyed.

To Determine Seasons of Occupation: The nature of the remains at EjMg-2 make it difficult to assess the time of year of occupation. Lack of direct evidence could be used to argue that any one or all seasons of the year are represented at Childs Lake, and perhaps that is true. Certainly the little evidence available is mostly negative and largely contradictory. An absence of floral remains indicates that the site was occupied in early spring, late fall or winter, not in late spring, summer or early fall when these resources are most abundant. An absence of large amounts of fish bone indicates that the site was not utilized during the spring and fall spawns. An absence of bird bone indicates that the site was not utilized during the spring and fall migrations.

Perhaps an acceptable explanation for the absence of these floral and faunal resources is that they were more abundant and more easily recovered at other locations in west-central Manitoba, e.g., the marshes at the mouths of the Duck and Drake Rivers on Lake Winnipegosis, where Native inhabitants of FbMb-1 caught and processed thousands of fish. Further, if one agrees with conventional wisdom regarding the manufacture and use of pottery, then the site would have to have been occupied in late spring, summer or early fall because pottery is present there.

However, if as has been suggested earlier, the site were utilized primarily as a stopping place for people travelling across the lake (east/west) or on the trail along its eastern shore (north/south), then there is no reason for its occupation to have been seasonally restricted. In fact, only the largest activity centres contained enough cultural material to provide data for this problem and they demonstrate probable occupations at all times of the year.

Activity Centre C -- an occupation in late spring/early summer, based on its location on the ridge (relief from insects) and the presence of pottery.

Activity Centre F -- an occupation in early spring, late summer or fall based on its location behind the ridge (protection from the wind) and the presence of pottery.

Activity Centre I -- an occupation in fall or winter based on its location behind the ridge (protection from the wind) and the absence of pottery.

To Determine Cultural Continuity: The question of cultural continuity at EjMg-2 is best looked at in conjunction with a discussion of prehistoric occupation on Duck Mountain in general, the subject of the following chapter.

V. ABORIGINAL OCCUPATION OF DUCK MOUNTAIN

Site Location

Through the combined efforts of both amateurs and professionals, some 39 archaeological sites have been located to date on Duck Mountain (Figure 42). Certainly many more sites exist on the Mountain, but their locations have not been verified. Professional archaeological survey activities have been limited to the Glacial Lake Agassiz Survey of the 1960s and Carmichael's 1980 efforts. The former was constrained by geomorphological considerations (Lake Agassiz produced beach ridges, terrace features, etc.) and the latter by Parks development plans. Therefore, the locations of known sites reflect the biases of the surveys that produced them. To put it simply, no doubt additional sites exist elsewhere on the Mountain, but no one has looked for them yet.

Site Chronology

Most of the known archaeological sites are represented by lithic debris or tool types whose chronological life spans are either unknown or too long to be of any value in assigning time periods to materials associated with them. Only EjMf-1, variously known as the Teepee Site, C3-MD-4, LAS 6, LAS 7 and Smith's Ridge, and the Childs Lake Site, EjMg-2, have been excavated to any great extent and neither produced organic material suitable for carbon-14 dating. Consequently, one must rely on projectile point and pottery typologies from dated sites elsewhere to assist in providing a chronology for sites on Duck

Mountain. Despite these restrictions, enough data are available to demonstrate aboriginal occupation of Duck Mountain from late Paleo-Indian to Historic times.

One of only three Paleo-Indian sites in Manitoba containing _in situ_ subsurface materials, EjMf-1, the Teepee Site, contained a Plano tradition component separated stratigraphically from other materials by 5 cm of sterile soil. Several Agate Basin projectile points and an incomplete stemmed point, all fashioned of locally abundant Swan River Chert, were recovered in association with a variety of unifaces, bifaces, wedges, choppers, cores and a hammerstone by the Manitoba Archaeological Society (Plates 30 and 31f). Additional lithic debris was recovered at the site by Watson Crossley in 1977. Two other sites, EjMh-2 (LAS-2) adjacent to the Shell River and EkMe-1 (LAS 234) near the outlet of Beaver Lake, were located during the Glacial Lake Agassiz Survey and presumably contained Plano-age materials, but the two projectile points involved could not be located in storage at the University of Manitoba and so their authenticity cannot be verified.

Dating Plano tradition materials in central Canada, far from the type sites and secure carbon-14 dates, is a risky business. In particular, it seems unlikely that Agate Basin remains are as old as their counterparts in the more southern and westerly reaches of the United States. On the basis of dates for glacial recession in both the Northwest Territories and Keewatin District (MacNeish 1951: 38 and Irving 1968: 39, quoted in Hanna 1973: 45), Agate Basin materials

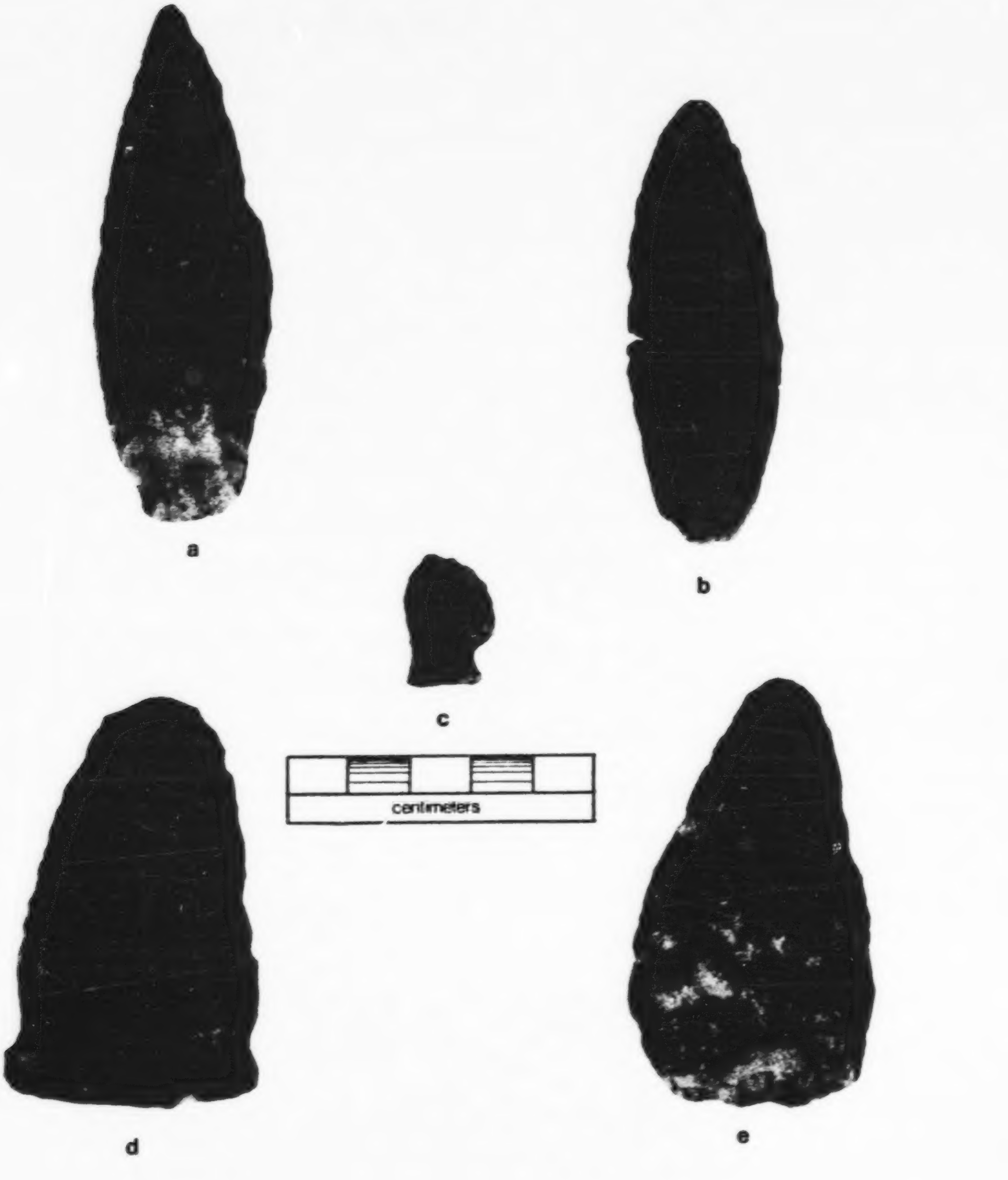

a
b
c
centimeters
d
e

PLATE 30 Plano artifacts from EjMg-1 excavated by the Manitoba Archaeological Society.

Agate Basin Points a) and b)
Stemmed Point c)
Bifaces d) and e)

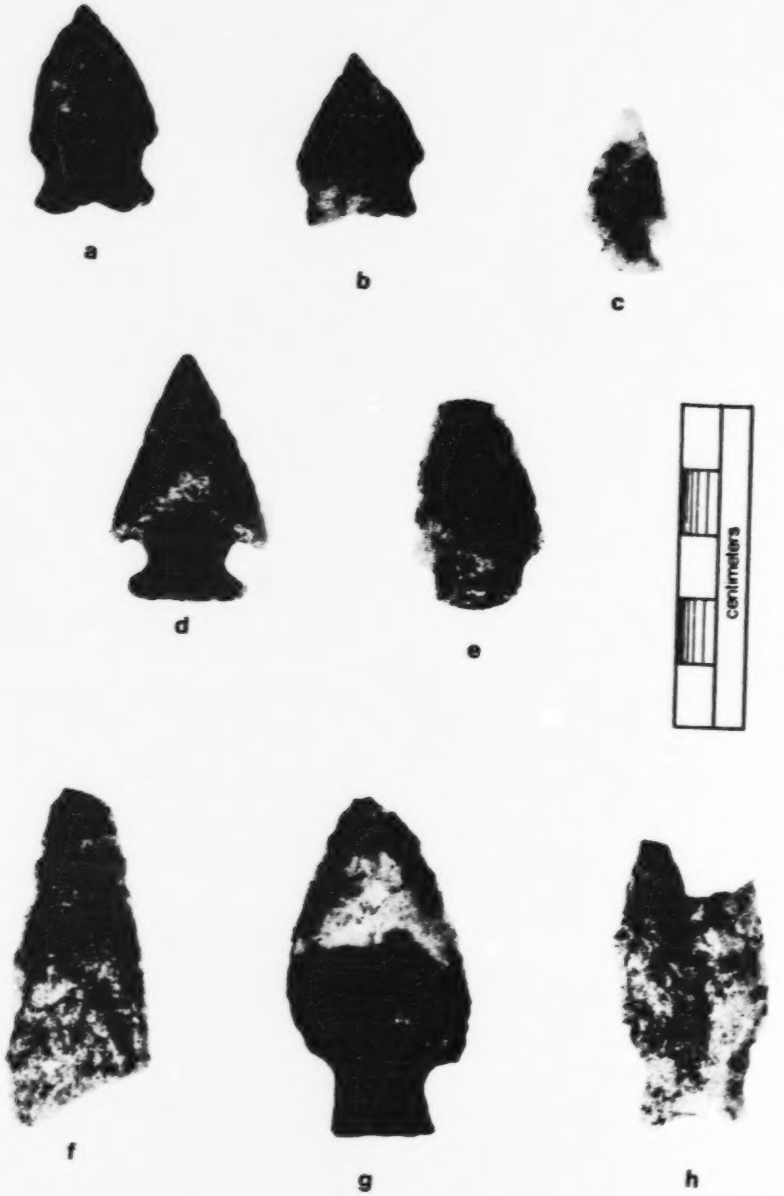


PLATE 31 Projectile Points from EjMf-1 excavated by the Manitoba Archaeological Society.

Besant Points a) and b)
Prairie Side-Notched Point c)
Pelican Lake Point d)
Stemmed Point e)
Plano Point Midsection f)
Hanna Point g)
Duncan Point h)

Figure 42

Key for Map

1. EiMe-1
2. EiMg-1
3. EiMg-2
4. EjMe-1
5. EjMe-2
6. EjMe-3
7. EjMe-4
8. EjMe-5
9. EjMe-6
10. EjMe-7
11. EjMe-8
12. EjMe-9
13. EjMf-1
14. EjMf-2
15. EjMf-3
16. EjMf-4
17. EjMf-5
18. EjMf-6
19. EjMg-1
20. EjMg-2
21. EjMg-3
22. EjMg-4
23. EjMg-5
24. EjMh-1
25. EjMh-2
26. EjMh-3
27. EkMe-1
28. EkMf-1
29. EkMf-2
30. EkMf-3
31. EkMf-4
32. EkMf-5
33. EkMf-6
34. EkMf-7
35. ElMf-1
36. ElMf-2
37. ElMf-3
38. ElMf-4
39. ElMf-5

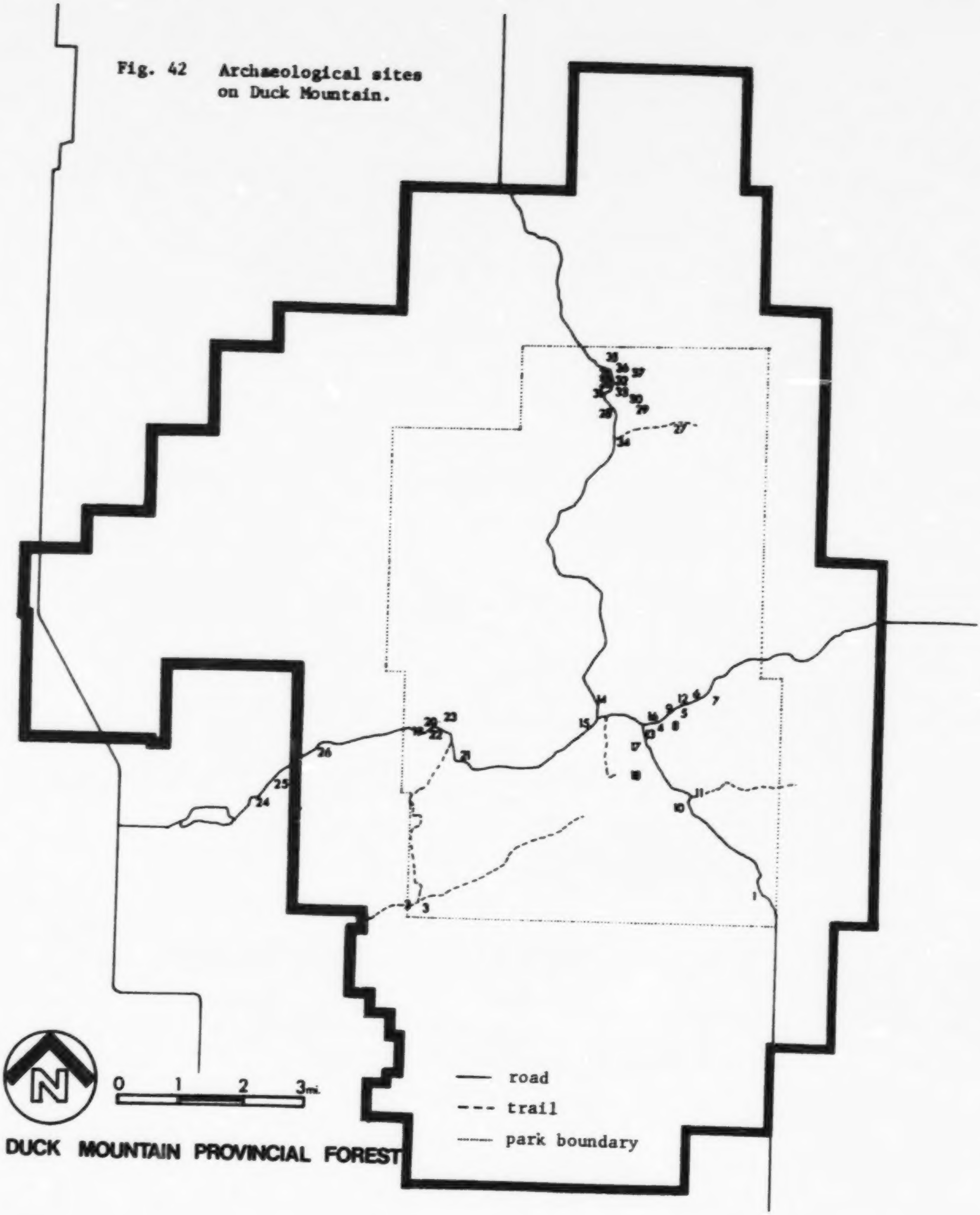


Fig. 42 Archaeological sites on Duck Mountain.

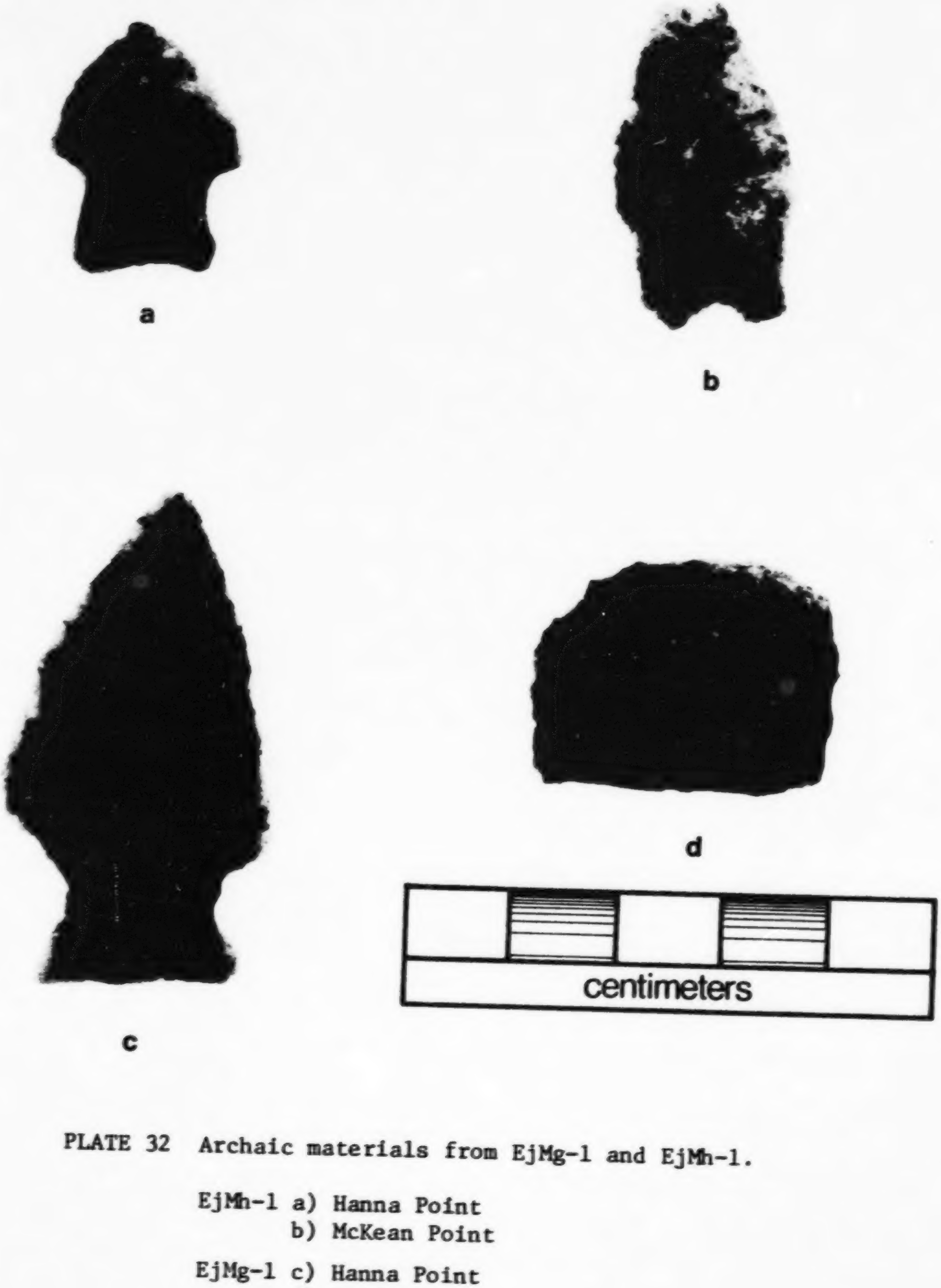
38
36
37
35
32
31
33
30
29
28
27
34
14
15
16
9
12
6
7
5
13
4
8
17
18
11
10
1
20
23
19
22
21
26
25
24
2
3
N
0
1
2
3mi.
road
trail
park boundary
DUCK MOUNTAIN PROVINCIAL FOREST

in these locales which are similar to those from EjMf-1 cannot be older than 5000 - 6000 B.C. These dates are more acceptable for central Manitoba than the 8000 - 9000 B.C. range recorded for the Plains region of the United States (Pettipas 1970: 15).

Hanna (1973: 45) discussed this problem in her report on EjMf-1.

> These few pieces of evidence indicate that Agate Basin points are probably of a later date than in the United States, although exactly how much later is yet to be determined. This later occupation is most likely due to such factors as cultural lag and the presence of glacial sheets and/or Glacial Lake Agassiz, which inhibited occupation of the area. Evidence from the Swan River and Carrot River Valleys indicates a possible time range of between 5,000 to 3,000 BC for that region, and because of the proximity of the Teepee Site to the Swan River Valley, Level C may be of this time range. The presence of the stemmed point may indicate a situation similar to that found at certain sites in the United States, where components all of a relatively late date, contained both stemmed and lanceolate points. Consequently, the early dates of 8,000 to 7,000 BC for Agate Basin sites in the American Plains probably do not obtain for the Canadian situation. Only a Carbon-14 date will clarify the problem of age.

Archaic-age materials, as represented by the McKean-Duncan-Hanna triumvirate of projectile points, have been located at three sites on Duck Mountain. In 1964 and 1965, two surveys in the picnic area at the southeastern end of Childs Lake established the location of EjMg-1 (LAS-4). These surveys recovered numerous flakes and a bison tooth. In 1980, Carmichael and Zywina also found a Hanna projectile point, an endscraper, and some sixty flakes there (Plate 32). EjMh-1 (LAS-1), adjacent to the Shell River and found also by the Glacial Lake Agassiz Survey from information provided by Nigel Smith, yielded two



a
b
c
d
centimeters

PLATE 32 Archaic materials from EjMg-1 and EjMh-1.

EjMh-1 a) Hanna Point
b) McKean Point

EjMg-1 c) Hanna Point
d) Uniface

Swan River Chert projectile points, one a McKean and the other a Hanna (Plate 32). As well, the upper level of the Teepee Site also contained McKean tradition materials (Plates 31 e, g, h, 33 b, c). Additionally, EjMg-5, found in 1981 at the western end of Hickey Lake contained a late Archaic-age Pelican Lake point and other lithic materials (Plate 34), while EjMf-1 also produced a Pelican Lake Point (Plate 31d).

Archaic artifacts, including those from dated sites, are widely distributed in Manitoba. Several areas of concentration -- the Whiteshell region, the Swan River Valley and the southwestern part of the province -- seem obvious, but these may result primarily from collecting activity in generally more populous areas of the province. McKean complex dates at the Mortlach and Long Creek Sites fall into the mid-1400 B.C. range (Wettlaufer 1955; Wettlaufer and Mayer-Oakes 1960). In Manitoba, dated McKean components have ranged from 1180 ± 110 B.C. (S479) at the Steeprock Lake Site (Simpson 1970: 144) to 935 A.D. ± 105 (S1033) at the Cherry Point Site (Haug 1976: 44). Pelican Lake materials are also dated from Saskatchewan sites. Reeves (1970: 158) considers 1000 B.C. an appropriate beginning for Pelican Lake, although dates from actual sites in Saskatchewan are at least 500 years later.

Initial Woodland materials on Duck Mountain are restricted at present to the Laurel vessel and associated unifaces recovered at EjMg-2 on Childs Lake in 1981 (Plates 20 and 21). As well, Besant materials occurred at EjMg-2 (Plate 6) and at EjMe-1 (LAS-5), which was verified by the Glacial Lake Agassiz Survey in 1965 from information provided by Nigel Smith. Unifaces, bifaces and projectile points, as well as lithic debris and bone fragments, have been recovered throughout the

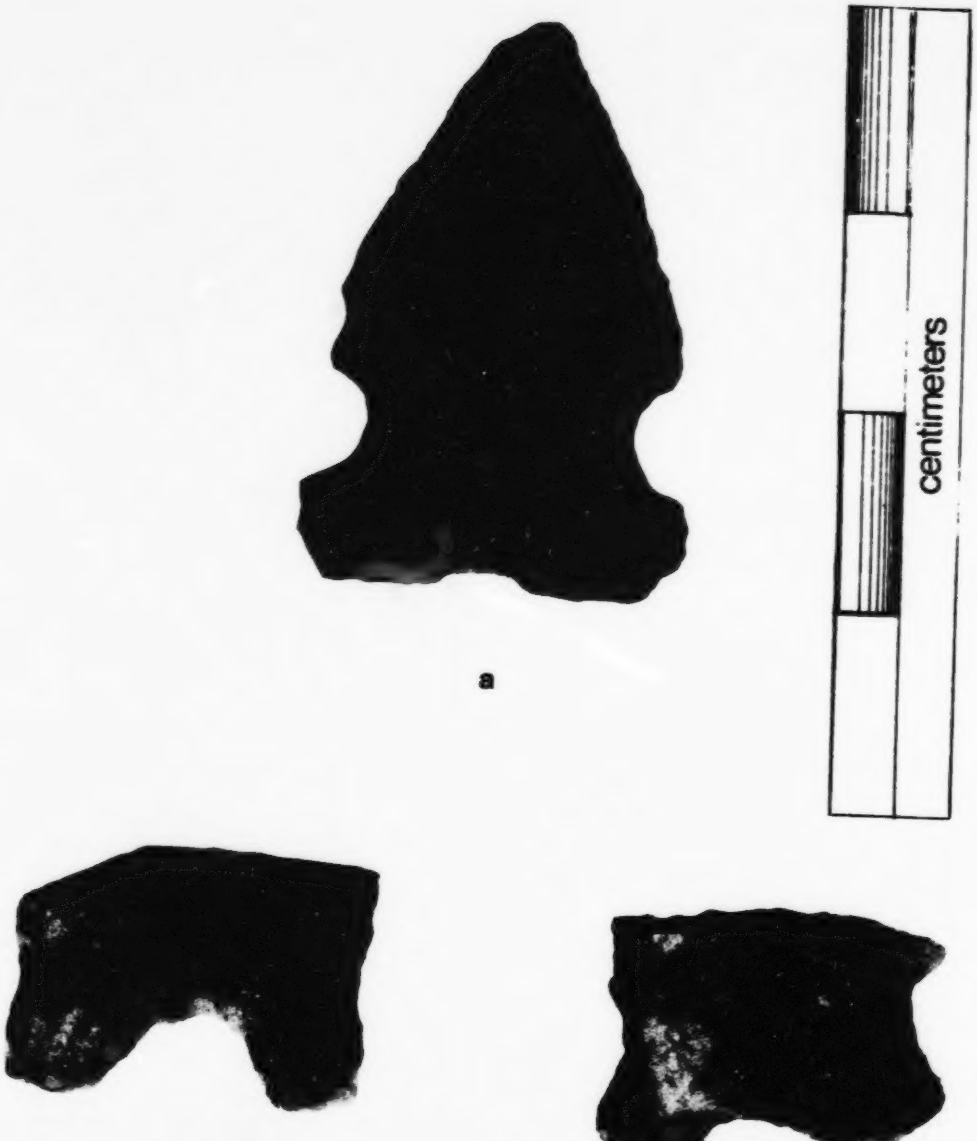


PLATE 33 Archaic and Woodland projectile points excavated at EjMf-1 by the Manitoba Archaeological Society.

a) Nanton Wide Rounded Base Point
b) and c) Duncan Point Bases

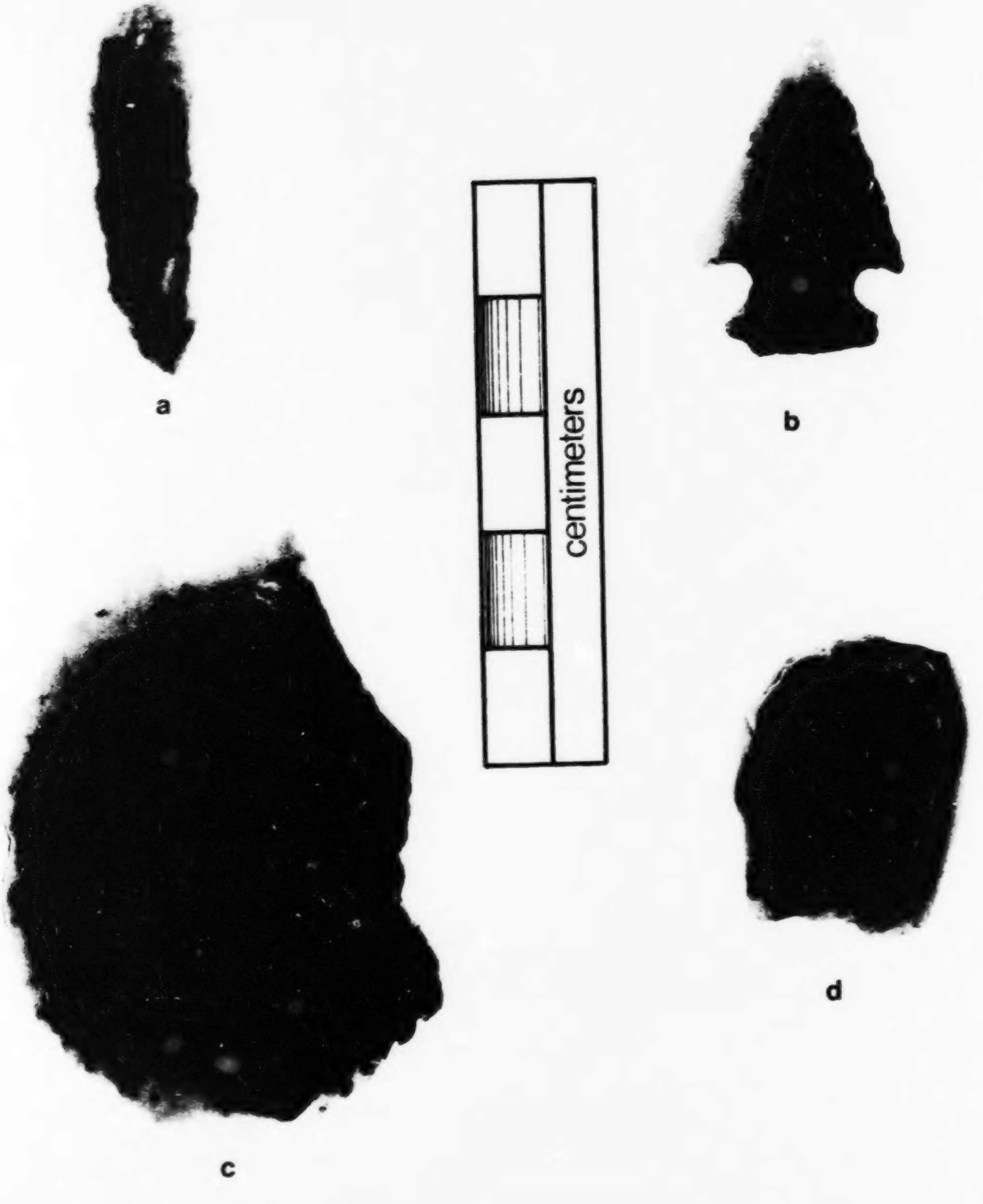

a
b
centimeters
c
d

PLATE 34 Lithic materials from EjMg-5.

Unifaces a, d)
Pelican Lake Projectile Points b)
Biface c)

years (Plates 35 and 36) from this site at the juncture of the Valley River and Singush Lake. Besant materials were also recovered at EjMf-1 (Plate 31 a, b, c).

Terminal Woodland materials are much more abundant on Duck Mountain, however. In addition to the Childs Lake Site, which contained mostly Terminal Woodland artifacts, Carmichael and Zywina located EjMe-5 at the western end of Singush Lake on its southern shore in 1980. This small, unassuming site did not hold much remarkable in the way of lithics, but it did produce five thin, fabric-impressed bodysherds belonging to a pottery style that is chronologically later than Laurel (Plate 37). The nearby Teepee Site, EjMf-1, also produced indications of a Terminal Woodland occupation. Stone teepee rings from which the site takes its name were found on the ground surface as well as a small side-notched projectile point of Knife River Flint (Plate 33a) and a Prairie Side-notched projectile point (Plate 31c). When the Glacial Lake Agassiz Survey investigated the site previously, it recovered two small projectile points -- one side-notched and the other corner-notched.

Initial and Terminal Woodland sites in Manitoba generally fall within a time frame of A.D. 1-1600/1700. Trying to determine the beginning and end-points for any chronological period is frustrating if not futile. Because one cannot know with certainly when contact with Europeans was first made, ambiguous situations are created regarding site chronology. A good example is provided by the Duck Bay Punctate vessel and its associated trade bead from Childs Lake. Another site with an analagous situation is EiMg-2, the West Angling Lake Site. At this location, the time frame is so late chronologically that it is

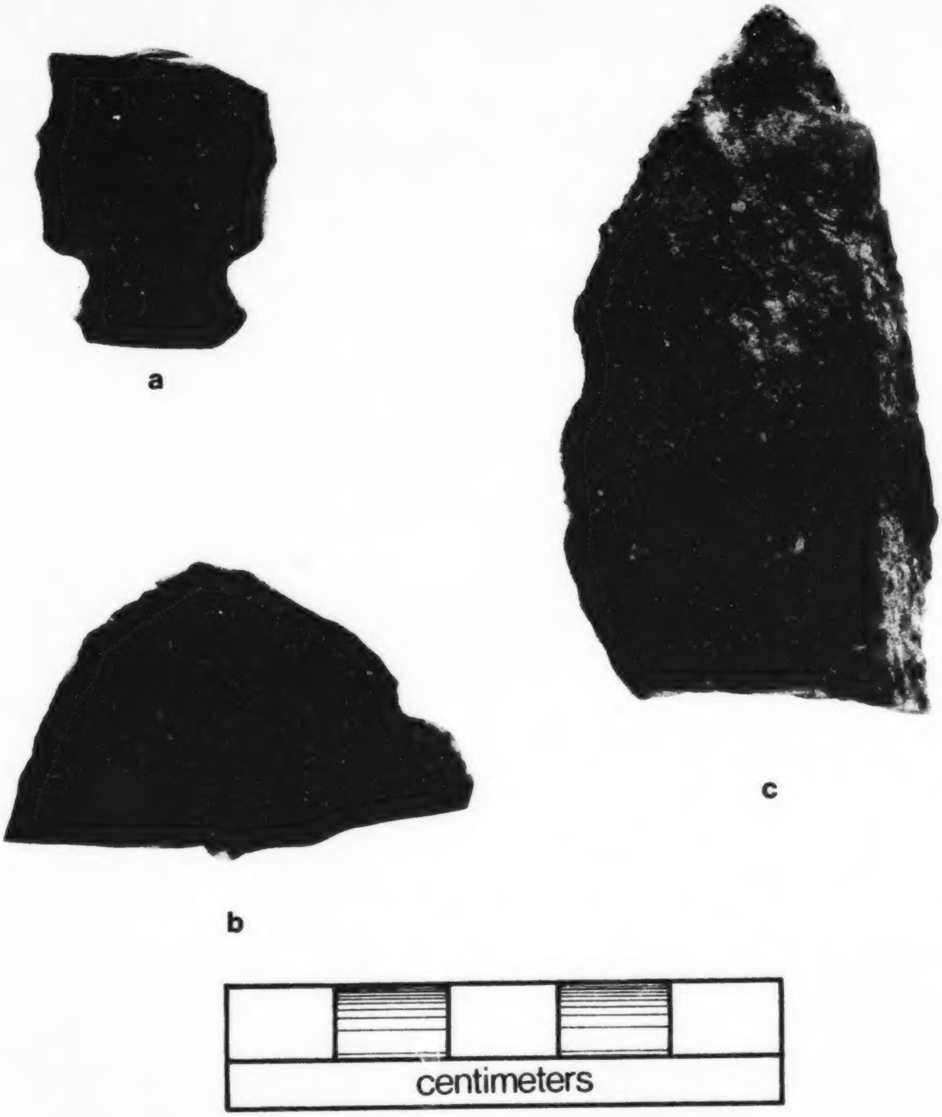

a
c
b
centimeters

PLATE 35 Lithic Materials from EjMe-1

Projectile Point a)
Bifaces b) and c)

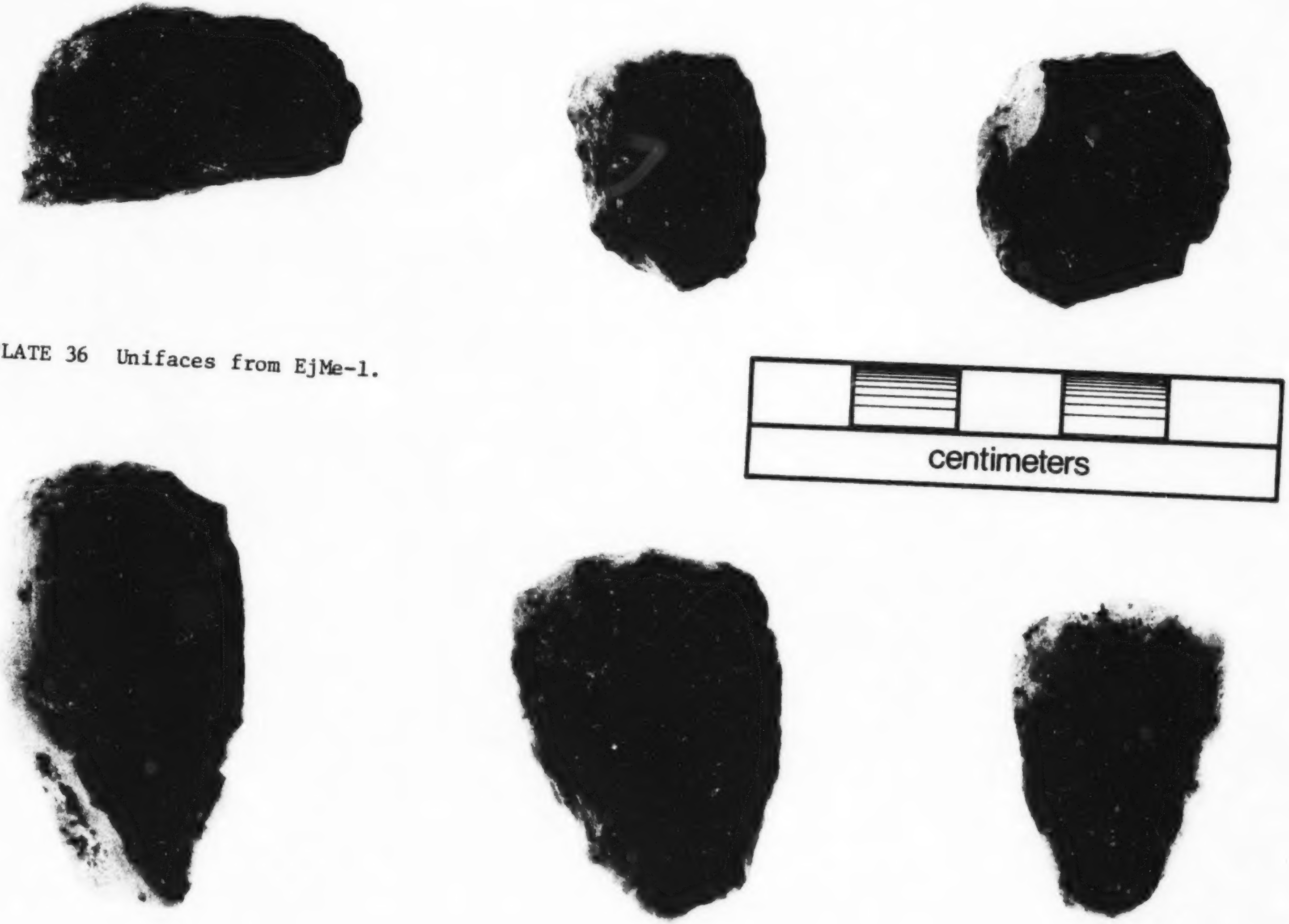

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PLATE 36 Unifaces from EjMe-1.

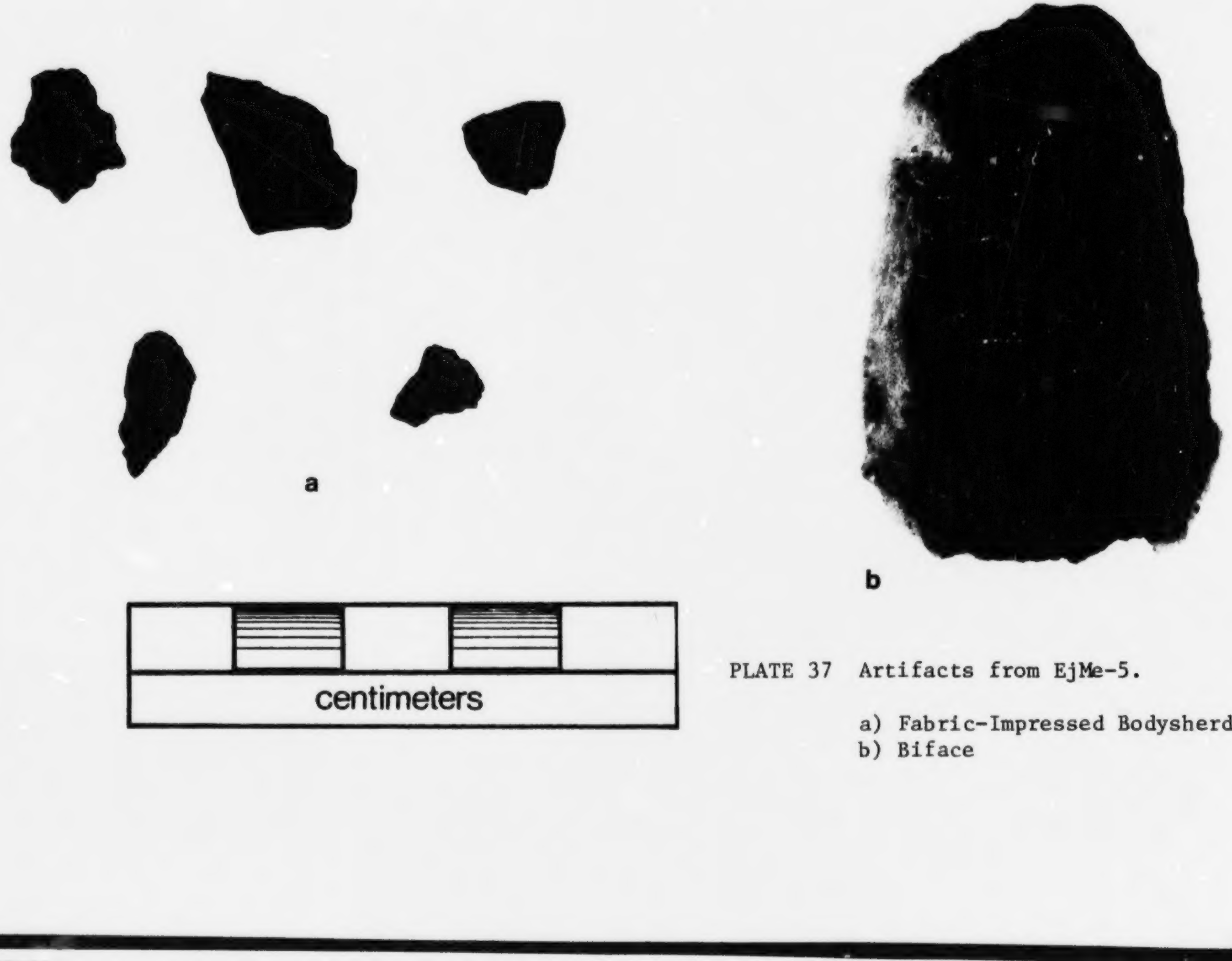
a
b
centimeters

PLATE 37 Artifacts from EjMe-5.

a) Fabric-Impressed Bodysherds
b) Biface

difficult to tell if the artifacts themselves are aboriginal or European. This area is rich in history, having been mentioned as the general location of a Northwest Company wintering post by John Tanner (James 1956: 80-81). When J.B. Tyrrell visited the area in 1887, he noted log cabins occupied by Natives during the winter (Plate 38). Sheldon Jones and Nelson Cockerill of Roblin took the Childs Lake crew into West Angling Lake during the summer of 1981. Both men had worked in this region at the first logging camp, established by Nelson Cockerill's father Kelly, in about 1918. Small-scale testing in 1981 uncovered a variety of glass and ceramic artifacts (Plate 39), as well as metal pieces and many fragments of large mammal bone butchered with metal tools. Most likely these materials pertain to the logging operations, but conceivably some of them could also relate to the earlier historic Native occupations. Aboriginal occupation of Duck Mountain is amply demonstrated during historic times through traders' journals, memoirs such as that written by John Tanner, and early settlers' reminiscences.

Site Geography

Only ten of the 39 sites discovered to date on Duck Mountain can be placed chronologically with much certainty. However, by plotting the location of all of these sites in reference to their nearest water source (Table 28), an interesting pattern emerges. Two of the 39 sites (5.13%), EiMe-1 (Baldy Mountain) and EkMf-7 (Copernicus Hill), are not located near any water source. Each produced only lithic flakes and was probably used as a "look-out", as both sites command imposing

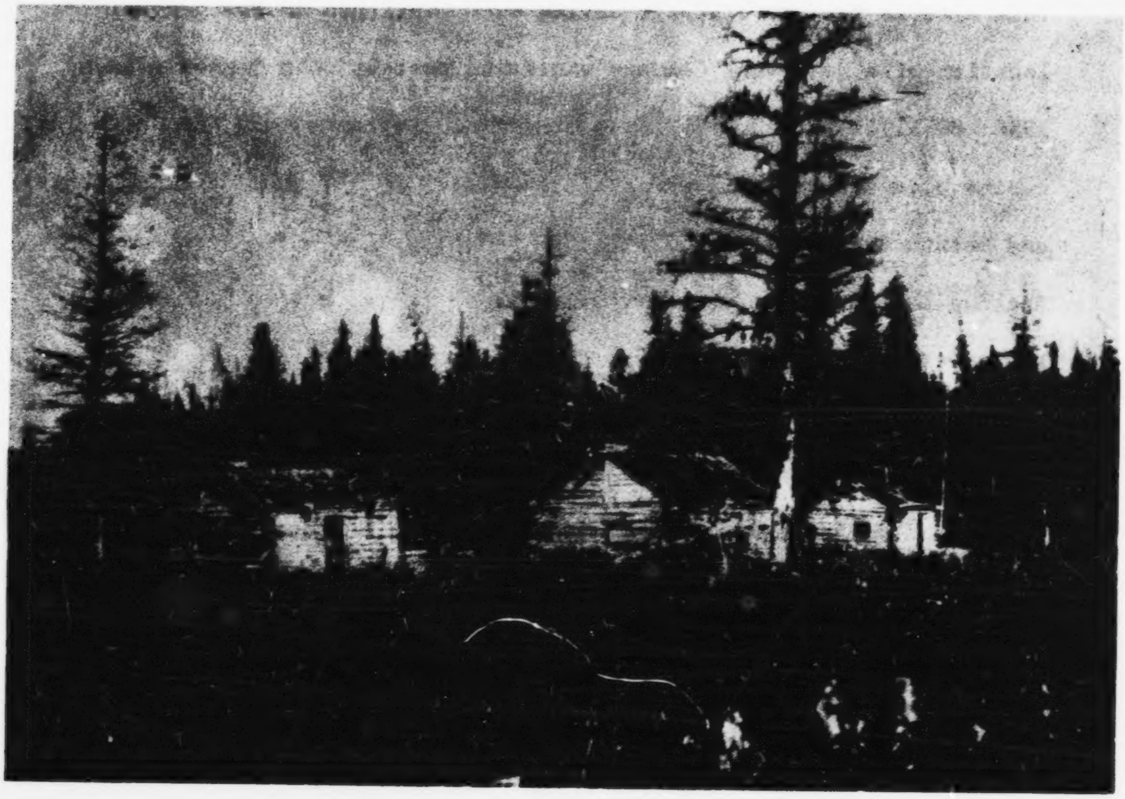

PLATE 38 Indian Winter Camp at West Angling Lake, 1887. "South of the river (Valley River) is a rough morainic tract rather thickly timbered with spruce, birch and poplar. West of this morainic area a more or less level district stretches for several miles, in the bottom of which lie several small lakes known to the Indians as the Angling Lakes. Near these are a number of well built log houses in which Cote and his band of Saulteux live during the winter season, while hunting and trapping in the neighbouring forests" (Tyrrell 1893: 128E).

Photo courtesy of Manitoba Archives.

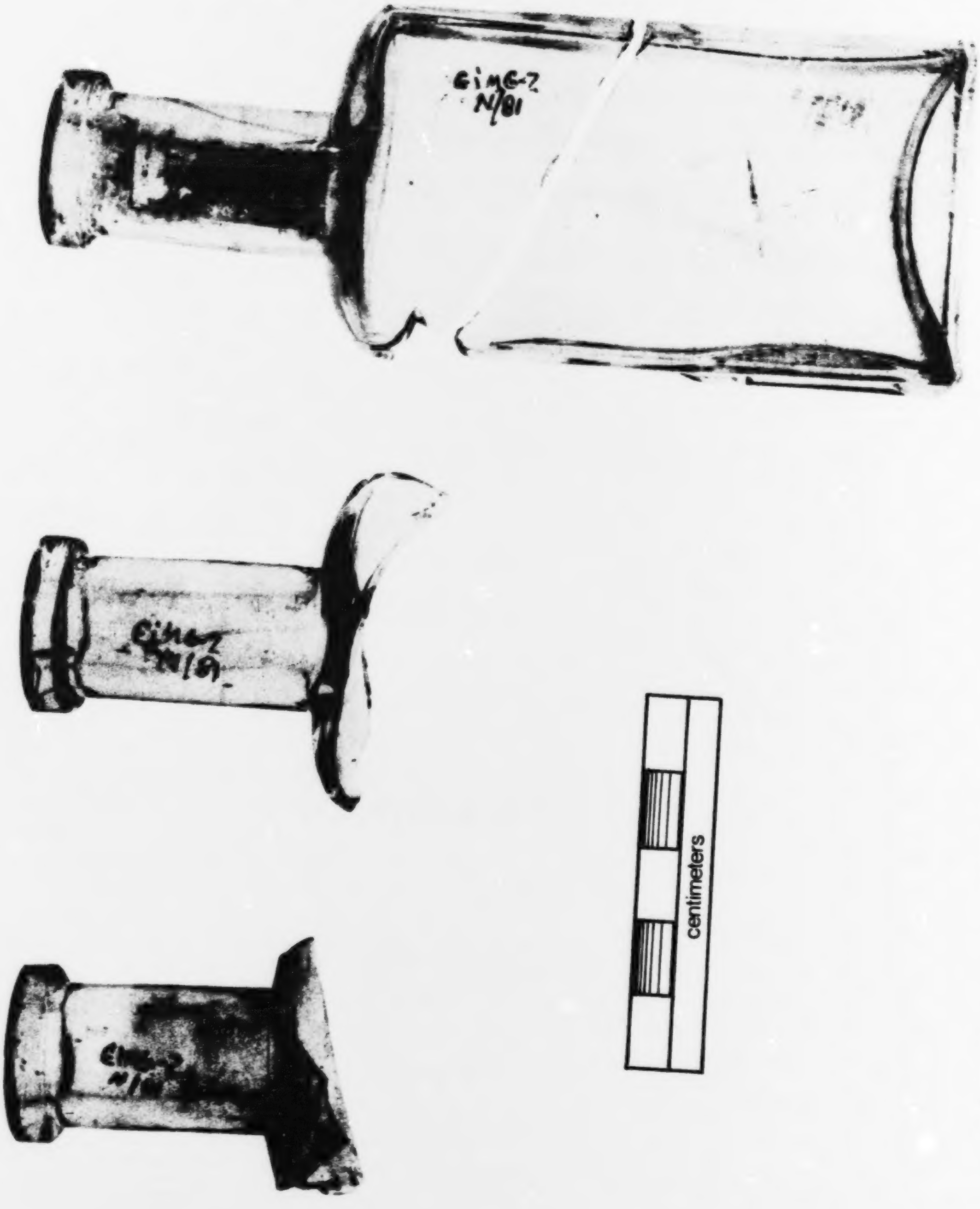
EiMg-2
N/81
EiMg-2
N/81
EiMg-2
N/81
centimeters

PLATE 39 Glass bottles from the West Angling Lake Site, EiMg-2.

TABLE 28

Geographical Location of Sites on Duck Mountain[1]

SITE	LOCATION				DISTANCE FROM WATER IN M.
	HILL	SHORE ADJACENT	LAKE RIDGE	RIVER RIDGE	
EiMe-1	x				-
EiMg-1			x		100
EiMg-2			x		50
EjMe-1			x	x	30
EjMe-2			x		50
EjMe-3			x	x	70
EjMe-4			x		75
EjMe-5			x	x	70
EjMe-6		x			20
EjMe-7			x	x	10
EjMe-8		x			25
EjMe-9			x		0
EjMf-1				x	50
EjMf-2		x			30
EjMf-3			x		65
EjMf-4				x	60
EjMf-5			x		40
EjMf-6			x	x	10
EjMg-1			x		10
EjMg-2			x		10
EjMg-3			x		100
EjMg-4			x		50
EjMg-5			x		50
EjMh-1				x	270
EjMh-2				x	180
EjMh-3		x			
EkMe-1		x			5
EkMf-1		x			5
EkMf-2			x		90
EkMf-3		x			10
EkMf-4			x		50
EkMf-5			x		40
EkMf-6			x		80
EkMf-7	x				-
ElMf-1			x	x	15
ElMf-2			x		25
ElMf-3			x		75
ElMf-4			x		10
ElMf-5			x		30

---

[1] Adapted from Carmichael 1980: 37.

views of their surrounding terrain. Baldy Mountain, of course, has the highest elevation of any spot in the province. The remaining 37 sites (94.87%) share as a common denominator a location on or above the shore of either a lake, a river, or both (see Figure 42).

Certainly it is no coincidence that the majority of sites found on Duck Moutain are located on ridges adjacent to a water source or the intersection of two water sources. Both ridges and river/lake water systems functioned as prehistoric highways, even during winter when frozen rivers would literally have become road-like. Recognizing the extensively interconnected system of ridges and waterways within Duck Mountain Provincial Park and Forest helps to explain the nature of its archaeological sites, which are primarily the remains of small temporary camps. Of all the sites discovered on Duck Mountain to date, only EjMf-1, the Teepee Site, possibly represents a lengthier or larger encampment.

Indubitably Duck Mountain was occupied, however briefly, in all seasons of the year by the Natives of west-central Manitoba. If a generalized seasonal round is examined for this area of the province, it reveals movement of Native groups into or through the uplands as a variety of foodstuffs were exploited during different seasons of the year.

1) In spring, small family groups would leave the uplands for the eastern lowlands, making sugar from the Manitoba maple (Acer negundo) as they moved toward Lakes Winnipegosis, Manitoba and Winnipeg where spawning fish and migratory waterfowl were abundant along the shores.

2) In summer, these expanded groups spent time on or near the lakeshores where game and plantstuffs were plentiful, or some of them moved west of the uplands to exploit bison on the plains.
3) In fall, extended groups would gather once more in the lowlands for fish and waterfowl.
4) In winter, small family groups exploited fur bearers and large game -- moose, elk, deer, bear -- in the uplands, as well as any bison who wintered in the shelter of river valleys at the western edge of the uplands.

Ethnographically and historically, these sorts of seasonal movements have been amply documented. In his classic study of the Plains Cree, Mandlebaum (1940) characterized the Cree as a people who alternated geographically between their woodland home environment and the Plains. Discussing the 1790 testimony of Umfreville regarding the Cree, Mandlebaum comments:

> The evidence of Umfreville is puzzling. He states that the Cree inhabit the vast woodland-lake-river area between Lake Winnipeg and Hudson Bay. He says that the Ojibway, living on the upper Great Lakes, are their neighbors and allies. On the other hand, the Cree use of buffalo hide, their fondness for horses, their methods of warfare and hunting, point to a plains culture. We can only conclude that the Cree known to Umfreville were characterized by an ambivalence between two environments.
>
> Among those bands in which the Forest culture was more powerful, the people clung mostly to the hilly, wooded country even though the buffalo herds and the plains were very near. Among those Cree to whom the prairie life was more attractive, the demands of the new environment overrode in the most fundamental things, the necessities of the woodland culture (1940: 180).

Obviously Mandelbaum considers the exploitation of both woodlands and plains environments to be an extraordinary and temporary phenomenon. Yet this particular type of adaptation has been demonstrated to have been deliberately chosen. During the two years that John Tanner spent in the west-central part of the province, he moved from the mouth of the Mossy (Valley) River on Lake Winnipegosis in the spring, to the plains west of the uplands in the summer, to the Duck or Porcupine Mountains in the fall and winter, and back to the lowlands in the following spring (James 1956: 76-82). In the late winter of 1802, Daniel Harmon commented upon the return of his Indians from the plains where they hunted bison in February and their subsequent movement to the uplands "to hunt the Beaver" (1957: 54-55). When Tyrrell trekked through Duck Mountain in 1887, he saw the winter encampment of Chief Coté (cf. Plate 38), whose summer quarters were in Saskatchewan nearer the plains.

> The thickly wooded areas of these mountains are the favourite hunting grounds of Indians who have their reserves by the lakes or along the Assiniboine. One of these latter bands, under Chief Cote, has cut a good cart trail from its reserve north of Little Boggy Creek to Angling Lake, where it has built a number of substantial log houses. These houses are deserted during the summer, but in the autumn, when the season for hunting and trapping returns, a portion, if not the whole, of the band moves here from the village and farms on the Reserve and supports itself during the winter on the proceeds of the chase (Tyrrell 1888: 13).

One could criticize these historical and ethnographical examples on the basis that aboriginal lifestyles were irrevocably destroyed by contact with European economic systems. To a great extent this is true, of course, and yet many examples may be given of the persistence of aboriginal activities even today: Saulteaux peoples living on the west side of Lake Manitoba continue to make sugar from the Manitoba maple (Acer negundo) every spring; elk are still hunted on Duck Mountain during the winter by Natives from reserves in Saskatchewan. When Peter Fidler, on the shores of Lake Dauphin in the eastern lowlands, employed Native hunters to supply Fort Dauphin with meat during the winter of 1819-20 (HBCA, PAM, B.51/a/2), the ages-old pattern of moving to the Duck and Riding Mountains or the river valleys west of them for elk, moose and bison was retained. Identical geographical areas were exploited, regardless of the ultimate destination of the meat, fur or hide.

A real difficulty involves tracing the movements of Native groups prior to historic records. Assuming that the same patterns pertained, one would look to archaeological materials for confirming evidence. Supporting data appears to be present among the remains of those Native groups utilizing Duck Bay Punctate pottery. Portions of nearly 300 vessels have been recovered from FbMb-1; the majority of these have been classified as Duck Bay Punctate. Additional vessels of this type were recovered at EjLx-3, the Winnipegosis Site, also located on the shores of Lake Winnipegosis near the mouth of the Mossy River (the locale of the Northwest Company's Fort Dauphin when John Tanner traded with Angus McGillis). Some of the vessels recovered at EjLx-3 have also been typed as Duck Bay Punctate (Gibson 1976). The Mossy River (via Lake Dauphin and the Valley River) and the Duck and

Drake (via the Sclater) Rivers have their sources on Duck Mountain. If there is any validity to the assertion that prehistoric inhabitants of west-central Manitoba were moving from the eastern lowlands to the western uplands in a seasonal cycle designed to maximize the acquisition of food resources, then there should be some indication of the presence of these groups in the upland areas, and specifically on Duck Mountain.

Although not extensive, such evidence does exist. At EjMg-2 on Childs Lake, remnants of two Duck Bay vessels were recovered in 1981. In addition, portions of five different Duck Bay pots were recorded by Margaret Hanna (1982) from materials collected by Eugene Gryba (1977) at FbMi-2 (LAS-43) in the Swan River Valley between Duck Mountain and the Porcupine Hills. The two sites in question bear little superficial resemblance to one another. EjMg-2 has been described thoroughly in this report; FbMi-2 lies approximately 2 km north of the Big Woody River (a tributary of the Swan River) on one of the raised gravel beaches of Glacial Lake Agassiz. What is similar about these two sites is the location on a "highway" system -- lake/ridge at EjMg-2 and river/ridge at FbMi-2.

If this evidence is to be accepted as valid, some explanation must be made, however, for the relative scarcity of Duck Bay ceramics in the upland regions of west-central Manitoba. Several possibilities present themselves. Little is known archaeologically about Manitoba's uplands. At this point, for example, knowledge of Duck Mountain's 39 sites has resulted primarily from survey activity conducted in conjunction with recreational development. Even less is known archaeologically about the Porcupine Hills, which is even less developed recreationally. Put simply, perhaps the pottery is there if only a search were made for it.

Another possible explanation for distributional differences between Duck Bay pottery in the uplands and lowlands concerns the season of occupation. Although it appears simplistic to state that pottery was not utilized in the late fall, winter, or early spring, indeed the usuage of pottery vessels during these periods would have been difficult. Certainly broken vessels could not have been replaced easily during cold weather. Clays in their natural state would be frozen and it would have been impossible to dry and fire a vessel outside successfully, even if the raw materials were available (Vera Slobodian: Personal Communication). Some support is given to this suggestion by the nature of the upland and lowland lithic assemblages for this general time period. The same styles of bifaces and unifaces, as well as similar Prairie and Plains Side-notched projectile points and unstemmed triangular points appear in both geographical locations; all that is missing from the upland sites is pottery.

Separated from the rest of the province geographically, Duck Mountain appears uninhabited, isolated and forbidding. If however, this area is viewed regionally as the upland portion of an interconnected economic settlement system, then its place in the prehistory of west-central Manitoba becomes clearer. During the past several summers, the Dauphin Chapter of the Manitoba Archaeological Society has organized a site verification and artifact cataloguing project for amateur archaeologists and interested lay persons in the Dauphin area. Initial efforts were focussed on the valley between Riding and Duck Mountains, which contains, for most of its length, the Valley and Shell Rivers. Distribution of sites within this valley (Figure 43) illustrates the concept of water systems as prehistoric highways, for archaeological sites literally line the Valley and Shell Rivers and their tributaries. Artifacts from the collections of Gilbert Plains residents Fred Cason and Arden McConnell (Plates 40 - 41) merely indicate the range of materials to be found in this area. Archaeological recoveries from sites on their property, as others in the valley and on Duck Mountain, span the entire length of prehistoric man's occupation of west-central Manitoba.

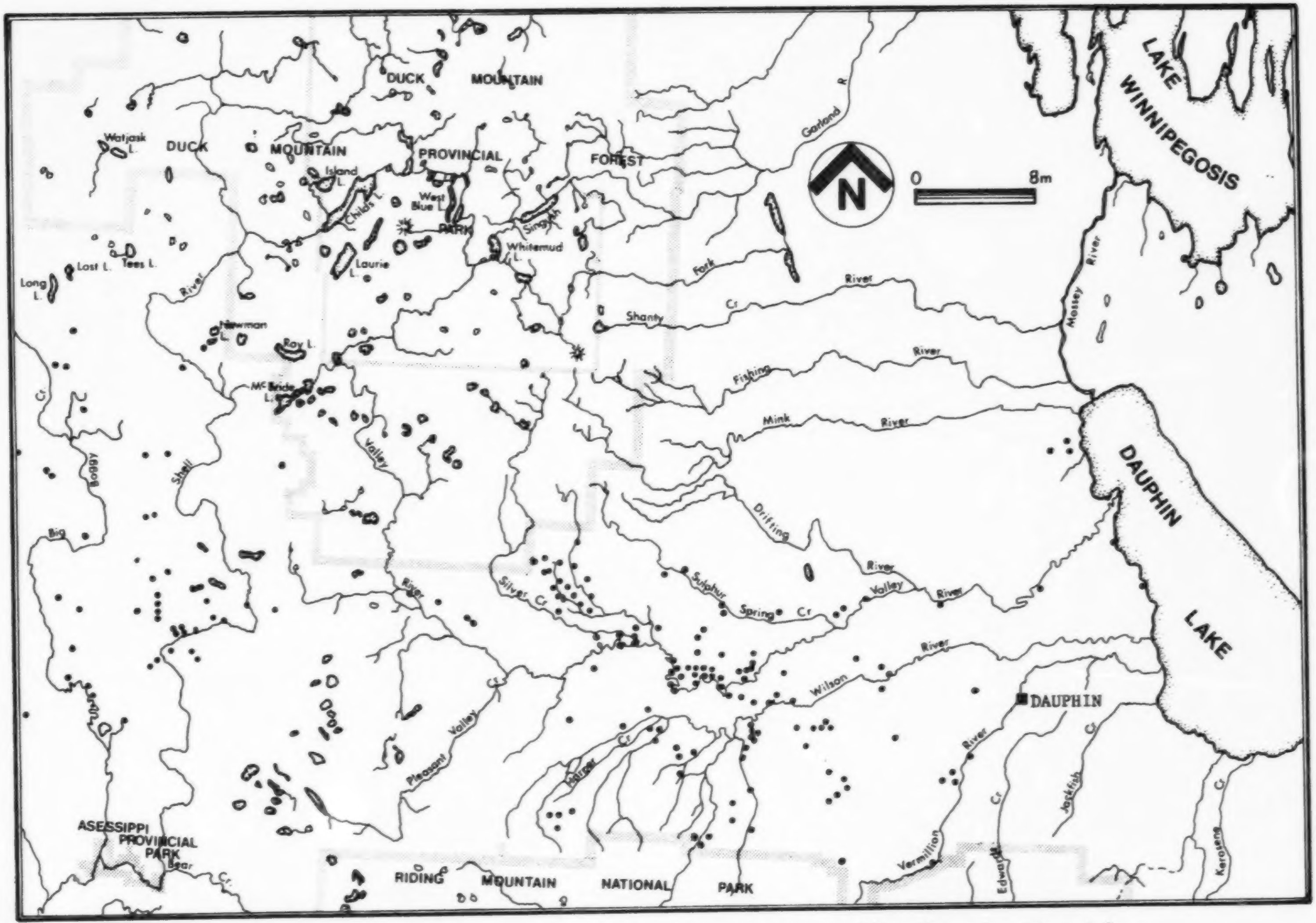
LAKE WINNIPEGOSIS
DAUPHIN LAKE
DAUPHIN
DUCK MOUNTAIN
DUCK MOUNTAIN PROVINCIAL FOREST PARK
RIDING MOUNTAIN NATIONAL PARK
ASESSIPPI PROVINCIAL PARK
N
0
8m
Garland R.
Mossey River
Fork River
Shanty Cr
Fishing River
Mink River
Drifting River
Valley River
Sulphur Spring Cr
Silver Cr
Wilson River
Vermillion River
Edwards Cr
Jackfish Cr
Kerosene Cr
Pleasant Valley Cr
Valley River
Shell River
Boggy Cr
Big Cr
Bear Cr
Watjask L.
Long L.
Lost L.
Tees L.
Island L.
Childs L.
West Blue L.
Laurie L.
Singush
Whitemud L.
Newman L.
Roy L.
McBride L.

Fig. 43 Distribution of archaeological sites between Duck and Riding Mountain. Adapted from Buhler 1981.

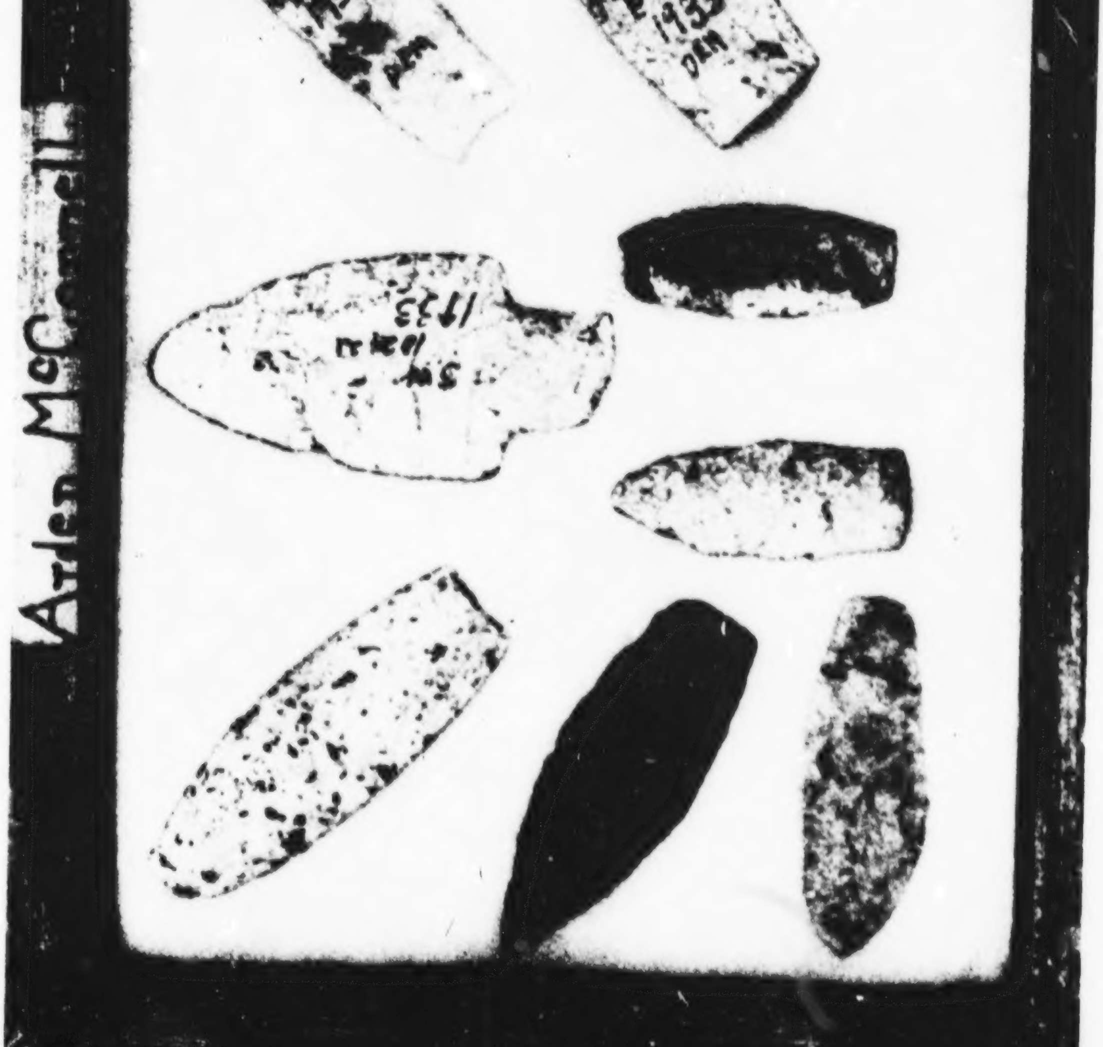
Arden McConnell

Plate 40 Paleo-Indian artifacts from the collection of Arden McConnell.

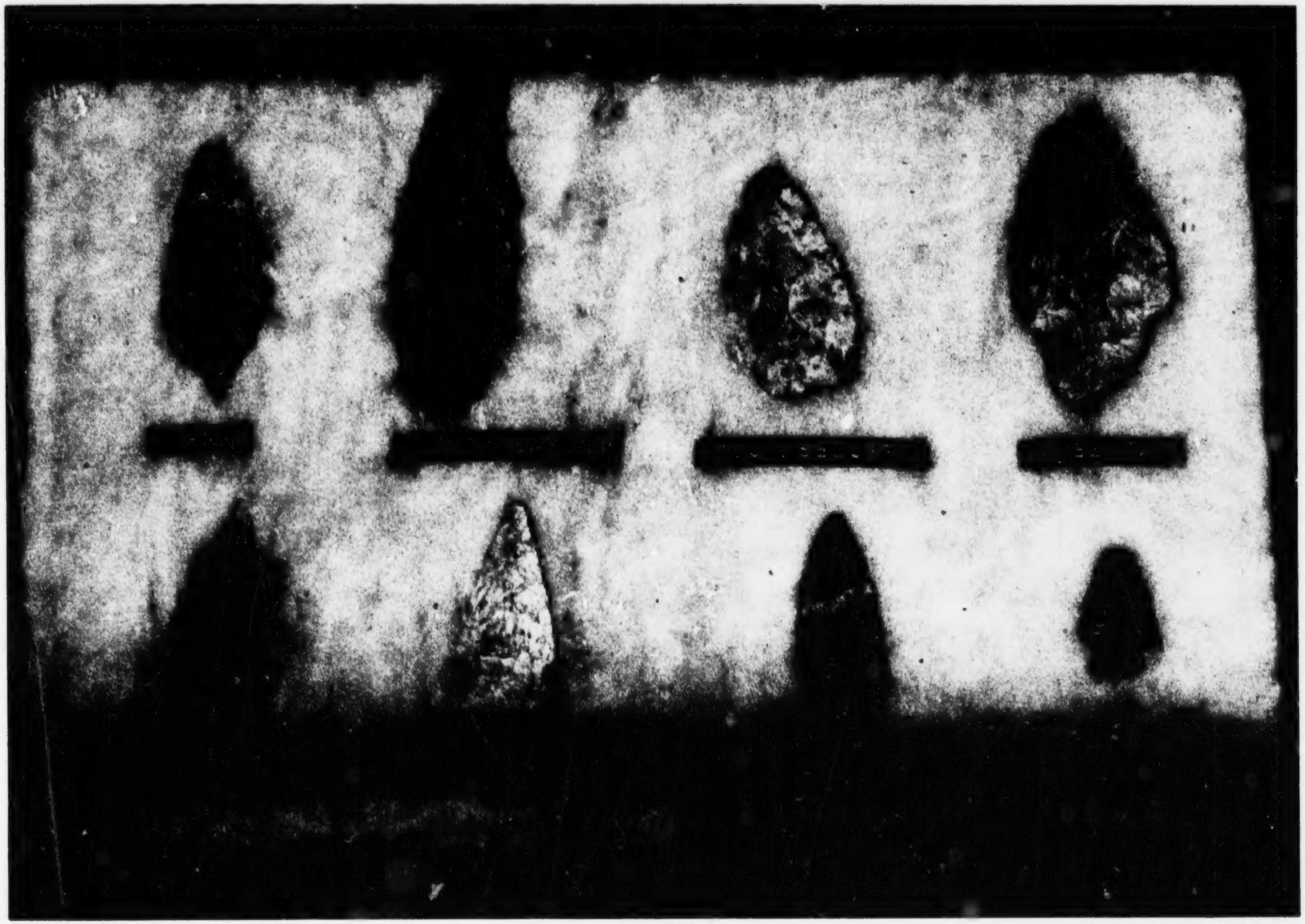

Plate 41 Paleo-Indian and Archaic artifacts from the collection of Fred Cason.

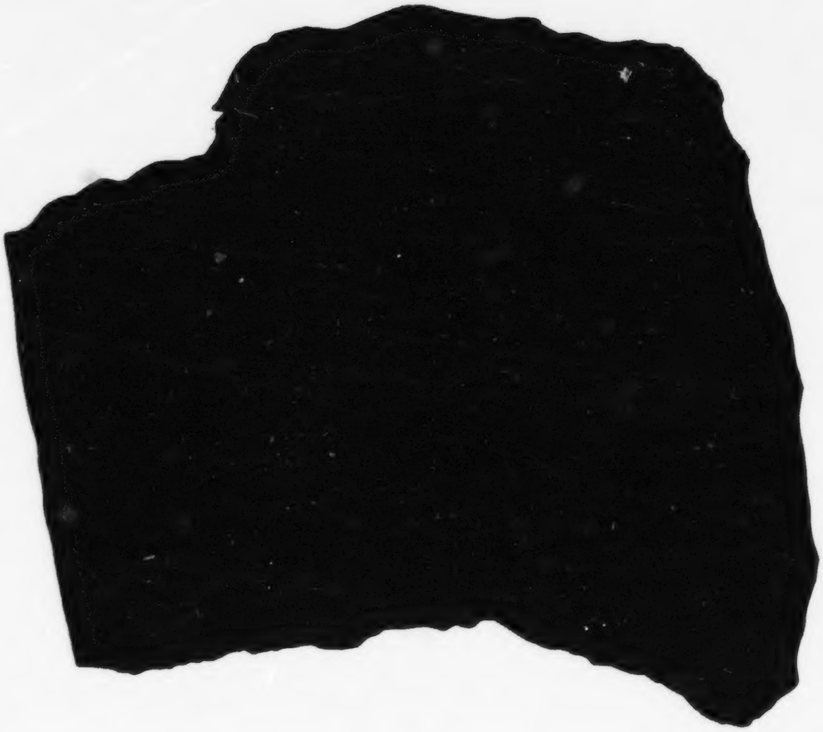

Plate 42 Rimsherd found along the Valley River on the property of Fred Cason.

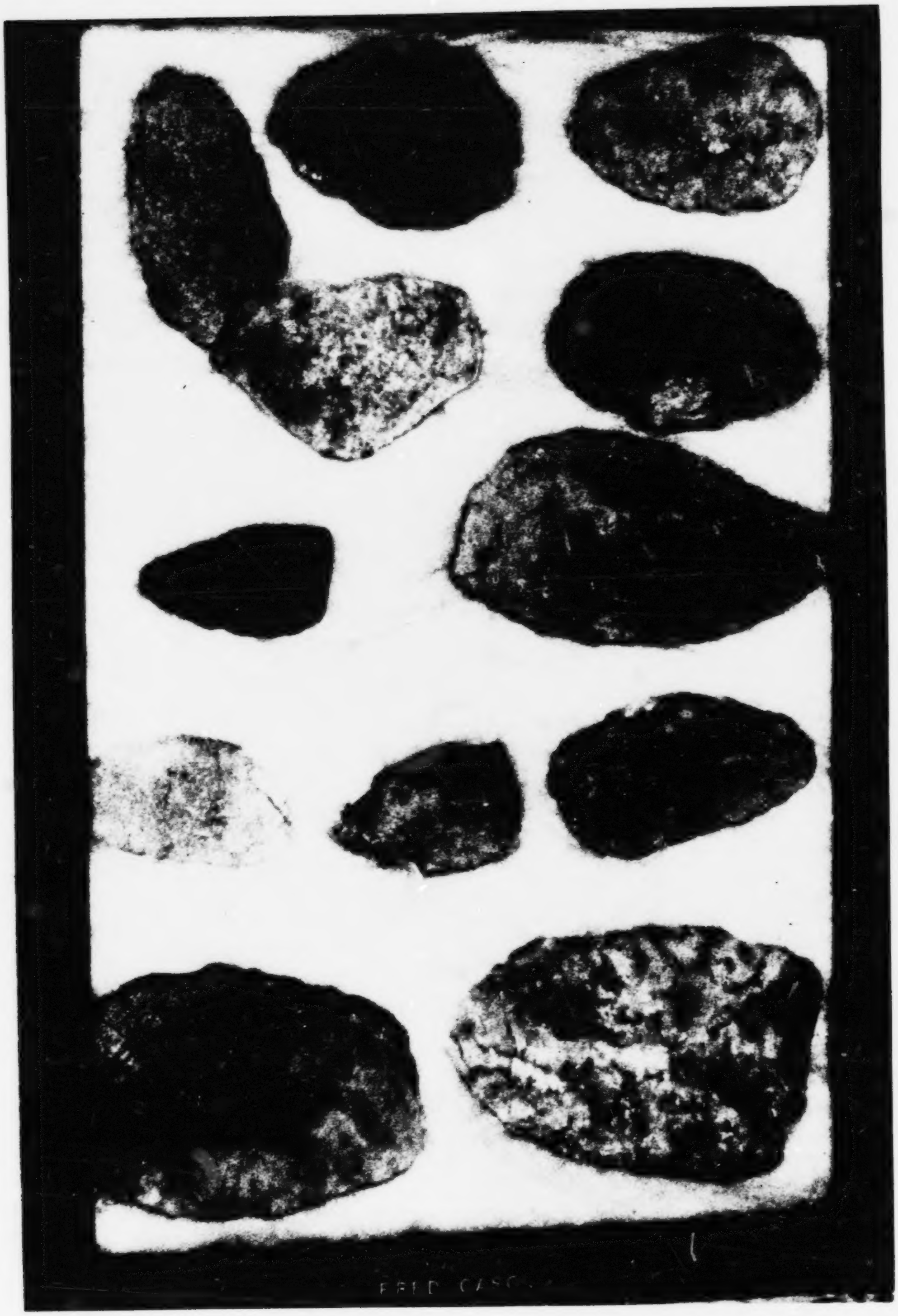

Plate 43 Lithic materials from the collection of Fred Cason.

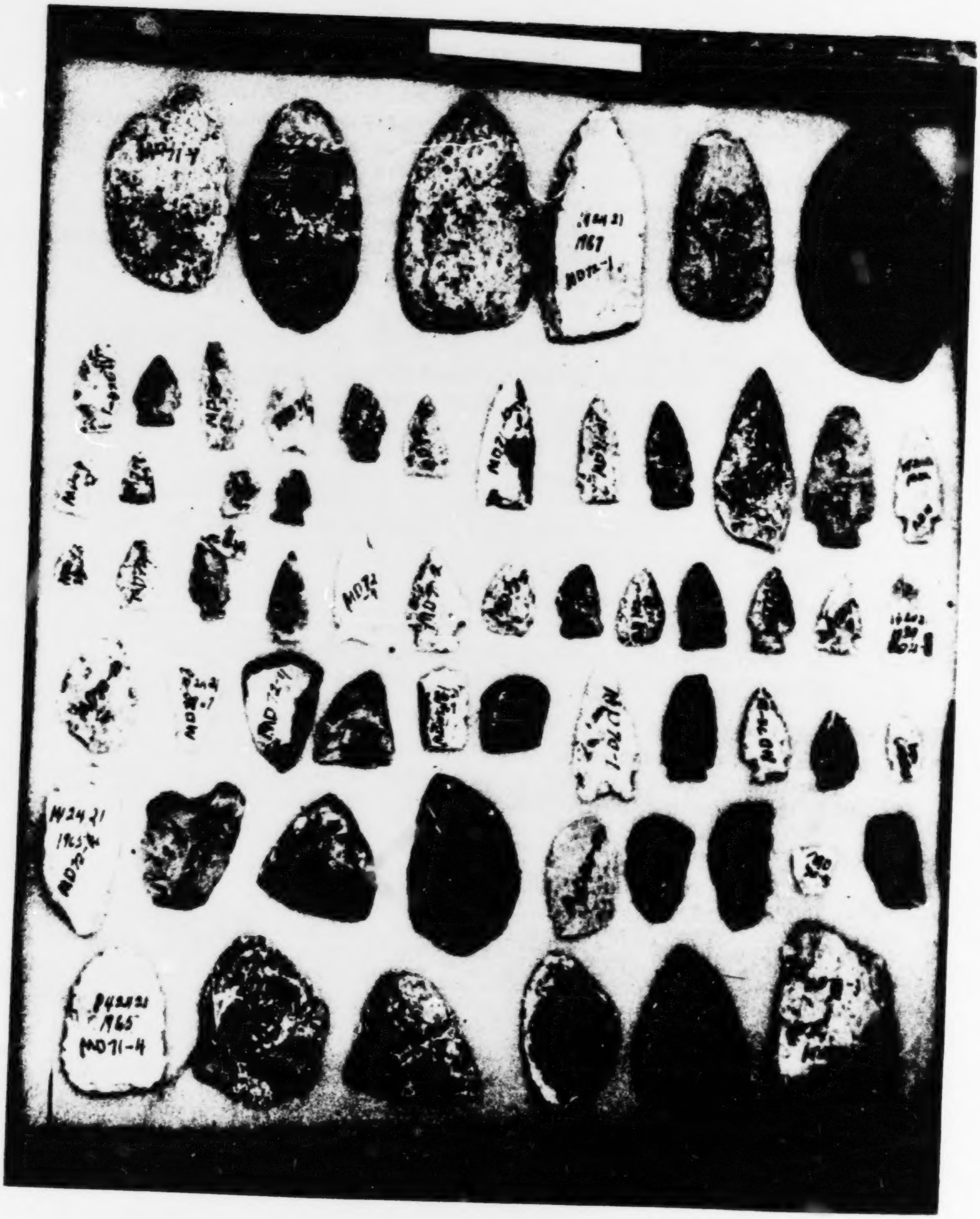

Plate 44 Lithic materials from the collection of Arden McConnell.

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